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ESSAYS ON ECONOMIC TRANSITION

BY THE SAME AUTHOR

Agricultural Labourers in Modern India and Pakistan (Bombay, 1952)

India We Want (Lucknow University, 1965)


ESSAYSth ON ECONOMIC TRANSITION

SURENDRA J. PATEL

Foreword
by
A. F. EWING



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©  SURENDRA J. PATEL

Surendra Jivarajbhai Patel (1923)

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FOREWORD*

GREAT economists have always been those who grappled with major issues of policy. It is no accident that the science was originally known as political economy and that its founders, Adam Smith and Ricardo, were referred to as the classical economists; Marx can be regarded as the last in this tradition. There is a long gap between J. S. Mill and the 'thirties, and it is significant that at that time economists again appeared who achieved both greatness and fame. Thus Wicksell and Keynes achieved major theoretical advances while grappling with contemporary problems of public policy.

During the long period of virtual eclipse of political economy, many distinguished economic theorists appeared who transformed the subject into a sophisticated theory of price relationships within a static equilibrium framework. There was little discussion of the determinants of the total volume of economic activity and of growth, which had been the major preoccupation of the classical economists. The economists of this era have been called, with some justice, apologists. Whether or not it was their conscious intention, their theories seemed to provide a justification for the capitalist system as it existed and an argument for non-interference by the State. We owe to Maurice Dobb the most developed and careful critique of economic theory in the last third of the nineteenth century and the first third of the twentieth. Apart from Dobb and the contributions of Lenin and Rosa Luxemburg, the Marxists achieved little in the development of economics and it is only in the last decade or so that economic theorists in the USSR and Eastern Europe, grappling with practical problems of planning, are making significant new contributions, with their colleagues the professors of political economy becoming left progressively high and dry, like the mediaeval schoolmen.

* The writer has been a friend and colleague of Surendra Patel for a number of years. As a member of the United Nations Secretariat, the views expressed here must be regarded as purely personal.

It is not perhaps surprising that the development of economic theory has taken this course. The vigour of the classical economists lay in their contributions to the onward march of what was then a new economic and social system, capitalism. By the same token, Marx's analysis developed as a critique of the evils of the system at the time and its tendency to pave the way for its transformation into a new social system. Then again, it is also not surprising that serious contributions to the theory and problems of economic planning could not arise until a social system had been firmly established in at least one country. Within the context of world history and geography, capitalism in its pure form has been in operation for less than two centuries and has embraced only a relatively small proportion of the world. In perspective, it seems presumptuous that a science devised to deal with problems which are limited, measured in terms of the preoccupations of only a fraction of the world and during such a limited space of time, should claim to have discovered universal truths.

The stage was set for new advance in economics at the end of the Second World War with the beginning of the emergence, soon to become a headlong rush, of so many new countries held down for centuries in poverty and economic stagnation. The beginnings of the real revolution in economics are to be found, therefore, in the problems of these new countries. Once again, economics has to grapple with the creation of wealth and growth. This is not to say that economics was transformed overnight, and indeed we still await a systematic formulation of development economics which will probably be done primarily by economists working in developing countries. *Economics since the war can be said to have taken two largely divergent paths. One has been the further refinement, largely with the aid of mathematics, of the essentially static theories of the half century before the Second World War; the other has been associated with and made possible by a new approach to statistics. Surendra Patel is one of the younger economists who has followed the second path. His avowed mentors are Kuznets, Kalečki and Myrdal, who have all combined an impatience with the sterility of the theories on which they were brought up and an ability to wield the powerful new statistical tools available. Patel's early education in economics was of course in his own country, where he was able to see at first-hand the*

possibilities and difficulties of transforming a vast and backward subcontinent. His subsequent education was in the United States, and for the last fifteen years he has worked in international organizations. This is of considerable general significance. Much of the development of economics and the *beginnings of coherent and useful theories of development* owe their origin to the work of the international organizations. These organizations or their research divisions have been led by some of the most distinguished economists of our times: Prebisch and Furtado in the Economic Commission for Latin America, Myrdal, Kaldor and Lary in the Economic Commission for Europe, Kalecki, Singer, Mosak and Dell in the United Nations Department of Economic and Social Affairs, and Gerda Blau in the Food and Agriculture Organization. Economics in these organizations had not only to help to propound solutions to the problems of developing countries but had access to immense new sources of factual and statistical information. One of the most striking differences between their economics and the neo-classical system is the basis of fact. By far the greater proportion of economic theory has been based on assumptions and logical reasoning, techniques which are necessary and sufficient in philosophy or mathematics but not sufficient in a social science. Similar developments have taken place in individual countries, frequently through the creation of new departments of applied economics, in, for example, the United Kingdom, where one thinks of the work of Kaldor, Balogh, Barna, Seers, Jackson and Maizels; in France through, for example, Perroux, de Bernis and Bettelheim, and of course also in the United States (Domar and Chenery) India (Mahalanobis and Sen) and Italy. It is interesting that many of those who are now directing the new economics in different countries have spent considerable periods working in international secretariats.

This book of essays shows admirably the continuity and development of Patel's thought. As is inevitable in a book of this kind, there is duplication. But throughout there is the preoccupation with the practical problems of economic growth, the statistical imagination, lucidity of expression and impatience with the all-too-frequent habit of the economist, in the spurious search for originality, to prefer the obscure to the simple.

The present collection consists of seventeen articles written

between 1952 and 1964, most of them in the last five or six years. They account for a significant proportion, but by no means the whole, of his output, bearing in mind that he has been responsible for major contributions to United Nations publications, particularly studies included in the annual Economic Survey for Europe prepared by the Economic Commission for Europe and recent studies prepared by the Economic Commission for Africa.

I should like to pick out from Patel's work and refer briefly to three contributions to economic theory illustrative of his approach. First, in a pair of articles, one published in 1959 and entitled "Savings, Investment and Economic Growth : a Dynamic Approach", and the other published in January 1960, "Planning in India and China : Its Relevance for a Theory of Economic Growth", Patel discusses an old and difficult problem. Economic growth requires a high level of investment and hence an equivalent volume of saving. Saving is income minus consumption. Consumption in an underdeveloped country is miserably low. How is one to break out of this circle ? Patel points out that this reasoning is perfectly correct when applied to a static situation where, with a given income, investment (savings) cannot be raised without lowering consumption. But in a dynamic situation investment is not merely an arithmetical deduction from income but also a generator of income. In a static situation investment cannot be raised without lowering consumption. In a dynamic situation investment raises income : the larger the investment effort, the more future consumption rises. Thus, he points out, the correlations between investment and consumption are entirely different in the two situations: *inverse in static conditions and direct in a dynamic situation*. In the first article referred to this whole process is worked out hypothetically with a wealth of statistics. In the second, the theory is applied directly to what actually happened in India and China between 1950 and 1958. He shows that in the initial year total gross national product and investment in China were about one-tenth higher than in India, but since the population of China was half as great again, the level of *per capita* GNP was about one-third less than in India. In 1950 gross investment in both countries was between 9 and 10 per cent of GNP and the current level of saving was about the same. By 1958 GNP rose by about 30 per cent in India and 100 per cent in China, i.e. more than three

times as high. Patel shows that the much higher rate of growth in China was accounted for by two reasons : first, the higher rate of growth of investment, and secondly the more efficient use of capital, i.e. a lower capital/output ratio. The low capital/output ratio was not primarily owing to low levels of technology (as he points out, the attempt to use small blast-furnaces had to be abandoned). It was due essentially to more efficient planning of the scarce investment factor by, for example, massive use of unemployed and underemployed labour for capital works, better utilization of capital equipment (in contrast to India) and the practical application of simple but highly productive modern agricultural techniques. But for present purposes the main theoretical and practical conclusion to be drawn from this experience is that the rapid increase of investment in China was not associated with any decline in aggregate consumption. During the period, consumption rose by about one-fourth in India and by over 80 per cent in China. In 1950, *per capita* consumption in China was approximately one-third less than in India. By 1958 it was slightly higher.

The next article to which I should like to draw attention appeared in 1959 and was entitled "Export Prospects and Economic Growth : India". This is an important example of the application of Patel's technique of analysis to a major problem facing all developing countries. Their dilemma is a familiar one. Investment has to be raised to generate growth. This means the application of more capital, primarily in the form of machinery. Most of this machinery has to be imported from the industrialized countries and has to be paid for primarily out of the export proceeds of the developing country. The exports of the developing countries are mainly in the form of agricultural raw materials, minerals and comparatively easily manufactured consumer goods such as textiles. Leaving aside the special case of those countries producing petroleum and some metals, world markets for such commodities are approaching saturation, or at best growing slowly. Moreover, the terms of trade tend to turn against the developing countries. Hence, in the absence of massive aid, the bulk of which has to be repaid, a major limiting factor on the growth process is the ability of developing countries to pay for the imported capital equipment they must have to promote real growth. India has suffered seriously from this dilemma, particularly since she has largely exploited

the more obvious opportunities for import substitution. Jute manufactures make up nearly one-fourth, tea one-fifth and cotton textile one-tenth of the total of India's exports; another quarter is accounted for by a miscellaneous group including nuts and vegetables oils, spices, tobacco, gums, hides, skins and leather. Non-metallic minerals and metal ores account for only 3 to 5 per cent. Patel shows that the export expectations of India's First Five Year Plan were inevitably not fulfilled despite strenuous efforts at export promotion and despite the fact that domestic supply of the commodities concerned increased and could have been increased still more had there been adequate demand. The reasons were to be found in the structural shift in the import demand of the industrialized countries, India's traditional trade partners, and the consequential effect on the world demand position of India's exports. As he points out, "India has been trying to sell more of the wrong things to the wrong places". He goes on to show that the future prospects, given the same policies, are little better. His conclusion, which is applicable to most developing countries in a similar situation, is that the only way out of the dilemma is to raise the domestic output of capital goods much faster than that of consumer goods and faster than the Indian planners themselves have envisaged.

Patel's article not unnaturally attracted some criticism from the representatives of the old school who were concerned to find explanations in traditional theory and were prompted also, it would seem, by their own views of what was good for India. In his polite but incisive rejoinder, Patel had no difficulty in showing that his critics had had an almost sublime disregard for the facts.

Patel's most important contribution so far is an article entitled "Economic Distance between Nations : Its Origin, Measurement and Outlook". This was published in 1964 but was circulated in draft among a wide circle of friends and colleagues some two years earlier and has already had a marked impact on thinking about development prospects. In a sense, much of his previous output and his delving into past patterns of growth was in preparation for this article, in which he shows in how short a span of time the now industrialized countries have transformed their economies. The thesis applied to Africa (in the first two chapters of a study by ECA published in 1963 and entitled *Industrial*

Growth in Africa) brings out that to reach present Western European levels, *per capita* agricultural output will have to be no more than doubled but industrial output multiplied by some twenty-five times. But it also shows that at rates of growth little higher than those adopted in the United Nations Development Decade, Africa can catch up with present levels in Western Europe in some forty to fifty years, provided it adopts a conscious policy of industrialization with the primary emphasis on capital goods, in other words, basic industry.

Part V of the present collection is primarily Patel's subsequent elaboration of the striking analysis in "Economic Distance" and he is already looking forward to the abolition of the economic problem. In this part of the collection is also included a remarkable quantification of the economic consequences which would follow from disarmament and what a tremendous contribution real disarmament would make to the solution of the developing countries' problems.

It would be easy to dismiss Surendra Patel's thought as Utopian, and indeed in the broad sweep of his thinking and analysis he has perhaps not yet sufficiently examined the immense practical problems that have to be solved if the perfectly realistic perspectives he has opened up are to be realized—the formulation of coherent plans, their execution, the coordination of plans, particularly among small countries, patterns of foreign aid, technical assistance, management, and above all the massive training effort required at all levels.

It is perhaps to the analysis of and propounding of solutions to some of these problems that he will turn next and indeed he has already taken a first step in this direction in drawing up, at the request of the Government of Congo (Leopoldville), an outline of a five-year plan¹ which opens up new prospects for that battered and divided but potentially immensely rich country.

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¹ See *Rapport PATEL* in *Ministère du Plan et du Développement Industriel, Travaux de la Conférence Nationale des Ministres Provinciaux du Plan, République du Congo, Leopoldville, February, 1964.*

PREFACE

NOBODY who staples together in a collected volume the intellectual output of a dozen years can pretend that all that is written in so many pages is equally interesting, original, valid or consistent. These essays reflect a quest for answers to the economic ills of our age, particularly of the poor countries. Most of them are empiric studies. Some deal with structural aspects. Others explore the problems of accelerating economic growth, while maintaining some form of external and internal equilibrium. Nearly half of them have India as their center. But since India alone equals in population the fifty-five states of Africa and Latin America, it is hoped that its problems, acute as they are, have some relevance to development economics. The other half deals with the changes in the world economy over the last century and prospects for the next one.

As I have struggled with these themes over the years, a general conviction has slowly taken shape that future historians would consider the two centuries (1850 to 2050) as the watershed in human history—a period in which the age-old economic problem was grappled with firmness and finally overcome. Those of us who are over-burdened with contemporary concerns may regard this a reckless generalization. But a perusal of the last one-third of this collection would, it is hoped, indicate some of the elements which form the basis for it.¹

These essays were written on different subjects at different periods for publication in different journals. As I reread them now, I find that many of them could be improved by a revision in the light of more up-to-date data and the development of my own thinking. Such a revision could have also avoided a repetition

¹ Further work along these lines is contained in my recent studies, "Economic Transition in Africa" in the *Journal of Modern African Studies* (Cambridge University Press) Vol. II, No. 3, 1964; "What is holding up Agricultural Growth?" in the *Economic Weekly*, Special Number, February 1964; "Educational Distance between Nations : Its Origin and Prospects" (under publication); and *India We Want* (Lucknow University, 1965).

at some points of an idea expressed elsewhere in a not altogether dissimilar language. But it has not been possible to do this. The essays are being reprinted as originally published and I hope the reader would overlook these shortcomings.

I owe a special intellectual debt to Professors S. S. Kuznets, Michael Kalecki and Gunnar Myrdal who more than other contemporaries have helped shape the basic outlook and the general approach of these pages. My debt to Mr. A. F. Ewing, who has written the kind words in the Foreword, is of a special type; over the last ten years, he has been a friend, colleague, critic and a source of professional encouragement. I also wish to thank all those friends, colleagues and particularly my partner who have patiently suffered exposure to some of these ideas when they were in the process of formulation. Without their constructive comments many of these might have remained wild conjectures with only a limited pretence to substantiation.

These essays would not have appeared in a collection but for the constant pressure from Dr. V. B. Singh to see them through the press and the cooperation of the Asia Publishing House. I am indebted to Anielka Brandt and Louisa Danieli for their generous assistance in computations. Mr. T. S. Papola has helped with reading the proofs and indexing. The publishers of the various journals in which these essays originally appeared and which are listed on the following page have kindly given their consent to reprint the studies. The acknowledgement of assistance from these sources is in no way intended to minimize the errors and weaknesses for which I alone am responsible.

*United Nations Economic
Commission for Africa,
Addis Ababa, June 1964*

SURENDRA J. PATEL

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The views expressed in these studies are personal and the United Nations Organisation, of which the author is a staff member, is in no way responsible for them.

- (1) The *Indian Journal of Economics* (University of Allahabad), July 1952.
- (2) The *Indian Economic Review* (Delhi School of Economics), February 1956, February 1957, February 1958 and August 1959.
- (3) The *Indian Economic Journal* (Bombay School of Economics), January 1958 and March 1964.
- (4) The *Indian Journal of Labour Economics* (Lucknow University), April 1962.
- (5) The *Economic Weekly* (Bombay), Annual Number, January 1960, Annual Number, February 4, 1961 ; and Planning Number, July 1961.
- (6) The *Economic Journal* (Royal Economic Society, Cambridge), September 1959 ; June 1961 ; and March 1964.
- (7) The *Economic Development and Cultural Change* (University of Chicago Press), April 1961.
- (8) The *Bulletin of the Atomic Scientists* (Educational Foundation for Nuclear Science, Chicago), October 1962.

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PART I

THE IMAGE OF ECONOMIC BACKWARDNESS

AGRICULTURAL LABOURERS IN INDIA AND PAKISTAN*

I

THE agrarian society in pre-nineteenth century India¹ consisted of largely self-sufficient village communities in which the cultivators and artisans had lived together for centuries on the basis of traditional arrangements regulating the exchange of the cultivators' products and the artisans' services. Each farmer carried on the cultivation of his farm with the assistance of his own family. In such a society, founded on the integrated unity of agriculture and handicrafts, there was little room for the existence of an independent and distinct class of landless agricultural labourers whose main source of livelihood was work on the land of others for which they received compensation in kind or cash.

All accounts dealing with India prior to the twentieth century drew attention to the relative absence of such an independent class of landless agricultural labourers². This was also conclusively proved by the census returns for the last three decades of the nineteenth century which showed that agricultural labourers formed less than fifteen per cent of the agricultural population covered by the census enumerations (see Table 1).

Sir Henry Maine, with deep historical insight, remarked during the third quarter of the nineteenth century that "just as according

* Reprinted from *Indian Journal of Economics*, Vol XXXIII, July, 1952.

¹ Unless specified otherwise, the term India refers to pre-Partition territories of the Indian sub-continent.

² Campbell, Sir George, *Modern India*, (London 1852), p. 65 ; Thomas, P. J. and Ramakrishnan, K. C., eds, *Some South Indian Villages: A Resurvey*, Madras University Economic Series, No. 4, (Madras, 1940), p. 347 ; Jack, J. C., *Economic Life of a Bengal District* (Oxford, 1916), p. 84 ; *Census of Punjab*, (Lahore, 1870), Table IV, *Census of Madras*, (1871), p. 117 ; Fariudinji, Jamsbedji, *Notes on the Agriculturist of the District of Aurangabad* (Times of India press, Bombay, 1881), p. 50.

TABLE I

OCCUPATIONAL COMPOSITION OF THE AGRARIAN SOCIETY IN INDIA AND
THE PROPORTION OF AGRICULTURAL LABOURERS THEREIN : 1871-1931
(in millions)

Occupation	Adult male workers	Male workers	Population supported			Working population	
	1871-2	1881	1891	1901	1911	1921	1931
(a)							
Total agricultural popu- lation of which	45.7	83.7	200.9	204.1	225.3	106.2	111.0
Rent-receivers					7.7	3.7	4.2
Owner cultivators	37.5	71.2	175.4	152.7	167.0	74.7	28.4
Tenant cultivators							36.2
Agricultural Labourers	8.2(b)	12.5(b)	25.5	52.4	50.6	27.8	42.2
of which							
Farm labourers				33.5	41.2	21.7	33.5
Unspecified labourers (c)				16.9(b)	8.3	5.1	7.5
Plantation labourers				1.0	1.1	1.0	1.2
Proportion of agricultural labourers : in per cent	18.0(b)	15.0(b)	13.0	25.1(b)	22.0	26.2	38.0

SOURCES : *Memorandum on the Census of India (1871-72)*, (London 1875), p. 55; *Financial and Commercial Statistics for British India*, (Calcutta, 1899), Sixth issue, pp. 18-19; *Reports on the Census of India*, (1901), I, part II, 368 ff.; (1911), I, part II, 262 ff.; (1921), I, part II, 200 ff., and (1931), I, part II, 206 ff.

(a) The coverage in 1871-72 was limited to British India, inclusive of British Burma; for the census years 1881 and 1891, it was extended to a few feudatory states, such as Baroda, Central India States, Hyderabad, Kashmir, Mysore and Rajputana. Since 1901, however, nearly the entire territory of India, including Burma is covered.

(b) These figures are overstatements owing to inclusion of some non-agricultural labourers. *Financial and Commercial Statistics*, loc. cit., p. xvii.

(c) A very large number of persons, who as the *Census Commissioners* have invariably insisted, "were in reality field labourers" and "must be collated" with them, have been for inadequately explained reasons classified separately as "unspecified labourers" in the Census returns. For the opinions of Census Commissioners to this effect see *Census Report*, (1911) I, part I, 413-4; (1921) I, part I, 246; (1931), VII, part I, 193. For these reasons their numbers have been added to those of agricultural labourers here.

to the Brahminical theory, each of the Indian sacred rivers loses in time its sanctity, India itself is gradually losing everything which is characteristic of it".³ His brilliant remarks were amply justified by the census returns during the first four decades of the twentieth century (see Table 1). The 1931 census returns disclosed that by then agricultural labourers came to form close to two-fifths of the agricultural population of India; their proportion virtually tripled from nearly thirteen per cent in the late nineteenth century to thirty-eight per cent in 1931, thus becoming numerically the *largest* group. This remarkable increase reflects the most dramatic social transformation in the entire history of Indian rural society.⁴

In the light of the results of the 1931 census returns, it is illuminating to note the manner in which the Royal Commission on Agriculture had brushed aside the problem of agricultural labourers in these words:⁵

The labour problem is, therefore, from the agricultural point of view, a simple one : to lessen the pressure on land. The essential condition for relieving pressure on land is, therefore, in our opinion, mobility.

It followed from such a brusque appraisal that the Royal Commission did not consider it necessary to devote more than five and a half pages to this problem in their rather voluminous report covering close to seven hundred pages. Other economists, generally following the footsteps of the Royal Commission, neglected to pay sufficient attention to this largest, though newly born, class of the

³ Maine, Sir Henry, *Village Communities in the East and West* (London, 1876), p. 24.

⁴ *Census of India* (1931), I, part I, p. 288-89. It is to be regretted that the Government of India has decided not to make available the results of the 1941 census enumeration of occupational distribution.

It should be noted here that due to numerous changes in classification the Indian census returns have "lost a great deal of usefulness for comparative purposes". Ghate, B. G., *Changes in the Occupational Distribution of the Population*, (Government of India Press ; New Delhi, 1940), p. 39. On account of changes between 1911 and 1921, it is impossible to compare the *absolute numbers*; however, a *rough* comparison of the *relative proportions* of each group within the total agricultural population is not precluded thereby.

⁵ Royal Commission on Agriculture, *Report*, (London, 1928), p. 12.

agrarian society in India. In point of fact, however, it is impossible to make a proper study of the Indian agrarian society without placing in proper perspective this largest class whose rapid evolution to predominance within the agrarian society is itself the most eloquent symptom of the thorough transformation of the traditional Indian agrarian society

It is clear from the provincial census returns that the proportion of agricultural labourers to the agricultural population varies from province to province (see Table 2). However, a closer analysis reveals that these variations present a distinct pattern which makes it possible to divide British India into three major regions based on the proportion of agricultural labourers within the agricultural population. On the basis of 1931 census returns, this proportion was the highest, that is nearly half of the agricultural population, in the *Southern Triangle* comprising Bombay, Madras and the Central Provinces; it was the lowest, that is below one-fifth, in the *Great North* comprising the United Provinces, the Punjab and the North-West Frontier Province; whereas between these two extremes, it was nearly one-third in the *Eastern Region* comprising Bihar and Orissa, Bengal and Assam. In short, the proportion is greatest in the Southern Triangle and it begins to taper off as one proceeds north-east toward Bihar and Orissa and from there, further eastward toward Bengal and Assam on the one hand, and north-westward toward the United Provinces, the Punjab and the N. W. F. P. on the other. This regional demarcation is strikingly borne out by various individual village studies.*

On the basis of the data in Table 2, it is now possible for us to

* There is a fairly extensive body of literature in the form of books and articles on village studies. Only a few of them are cited below. For the Southern Triangle, see Desai, M.B., *The Rural Economy of Gujarat*, (Bombay, 1948), pp. 22-3; Shukla, J.B., *Life and Labour in a Gujarat Taluka*, (Bombay, 1937), pp. 81, 114; Ranade, V.G., *A Social and Economic Survey of a Konkan Village*, (Bombay, 1927), p. 83. For the Eastern Region, see *Report of the Bengal Land Revenue Commission*, (1938) II, 117; *Census of India 1941*, (for Bengal) IV, 121; *Report of the Famine Enquiry Commission* (1945), App. 1, pp. 201-2 and an article by Ghosh, A., in the *Indian Journal of Economics*, January 1948; also *Sankhya*, VIII, part 4, (1946). For the Great North see the various surveys by the Punjab Board of Economic Inquiry; Raina, J. L., *The Indian Rustic* (Lahore, 1935), pp. 41-52; Advani, Gopal, *Etude sur la Vie Rurale dans le Sind (Inde)*, (Montpellier, 1926), p. 45.

TABLE 2

THE NUMBER OF AGRICULTURAL LABOURERS AND THEIR PROPORTION TO THE AGRICULTURAL POPULATION IN VARIOUS REGIONS OF BRITISH INDIA : 1901-1931

Regions	Population supported		Working population	
	1901	1911	1921	1931
<i>A. Number in millions :</i>				
Total for the regions :				
Agricultural population	(160.0) ^a	176.2	82.4	82.2
of which agri. labourers	(31.2)	(36.2)	20.4	29.8
<i>I. The Southern Triangle :</i>	16.6	17.2	10.2	15.7
Bombay (incl. Sind)	4.2	3.6	1.4	4.2
C. P. and Berar	4.2	4.4	3.2	3.9
Madras	8.2	9.2	3.6	7.6
<i>II. The Eastern Region</i>	(5.8)	(11.3)	6.5	9.1
Bihar and Orissa	(3.6)	7.1	3.8	5.0
Bengal	(1.4)	(3.4)	2.1	3.3
Assam	0.8	0.8	0.6	0.7
<i>III. The Great North .</i>	8.8	7.7	3.7	5.1
The United Provinces	7.5	6.2	3.0	4.0
The Punjab	1.2	2.4	0.7	1.0
N.W.F.P.	0.1	0.1		0.1
<i>B. Proportion in per cent :</i>				
Total for the regions :				
Agricultural production	100.0	100.0	100.0	100.0
of which agri. labourers	(19.5) ^a	(20.5)	24.8	36.3
<i>I. The Southern Triangle :</i>	34.4	31.3	36.5	53.8
Bombay (incl. Sind)	35.2	27.6	27.8	56.7
C. P. and Berar	42.4	37.0	43.4	51.7
Madras	30.3	30.7	36.1	52.9
<i>II. The Eastern Region :</i>	(9.6)	(16.3)	22.1	32.9
Bihar and Orissa	(14.0)	24.1	26.0	35.2
Bengal	(4.8)	(10.0)	17.7	33.2
Assam	15.2	13.8	19.9	22.2
<i>III. The Great North :</i>	17.4	14.9	14.8	19.9
The United Provinces	21.1	17.2	15.6	21.9
The Punjab	8.1	16.9	12.9	14.4
N.W.F.P.	8.3	7.7	5.9	87.9

SOURCES : Separate Census Reports for each of the provinces mentioned for the year stated.

(a) The figures in brackets are understatements owing to lack of data on unspecified labourers for Bengal, Bihar and Orissa which were jointly covered as one region during 1901 and 1911 ; however, the total for India in Table 1 includes this figure.

determine in general terms the proportion of landless agricultural labourers to the total agricultural population in the Republic of India as well as Pakistan. Areas with a relatively smaller proportion of agricultural labourers, such as West Punjab, N. W. F. P., Sind and East Bengal, now form Pakistan ; whereas others with a much larger concentration of agricultural labourers constitute the Republic of India. As a result, it is estimated that agricultural labourers form less than one-fifth of the agricultural population in Pakistan, whereas in the Republic of India this proportion is higher than two-fifths

II

The above presentation gives rise to a number of pertinent questions. What were the circumstances that were responsible for such a rapid increase in the size of the class of landless agricultural labourers ? What accounts for the unique regional differences in their proportion ? Do they form a homogeneous class all over India or are there markedly different types within them in the various regions of India ? In the absence of adequate data and previous analytical studies, it is obviously very difficult to provide precise and definitive answers to any of these questions. However, an attempt is made in the following pages to provide some answers which, though tentative, might usefully serve as points of departure for further studies.

After Baden-Powell's detailed study of the extensive literature on land settlements in India, it is now possible to form some general outline of the structure of land-holding in pre-British India.⁷ He has marshalled impressive evidence to show that there was no uniform type of communal or joint land-holding throughout India. There were, in fact, two main patterns in which land was held : the communal or joint form of land-holdings in which land was held jointly by the village community and the severalty or the *raiayatwari* form of landholding in which land was held in entirely separate units by different cultivators. In general he found that the

⁷ Baden-Powell, *The Indian Village Community*, (London, 1896).

joint form was prevalent in India north of the Vindhya mountain ranges, i.e. in the U. P., the Punjab and the whole of Upper India ; the *raiya*t*wari* form, on the other hand, was prevalent in the north-east, central, south and south-west India, i.e. in Assam, Bengal, Bihar, Orissa, Central Provinces, Madras and Bombay.⁸

It is evident that there is a close correlation between Baden-Powell's regional demarcation of India on the basis of forms of landholding and the regional pattern, shown in the preceding section of this article, based on the proportional size of the class of agricultural labourers. The Great North, where we found the proportion of agricultural labourers to be the smallest, that is below one-fifth of the agricultural population, is precisely the region where Baden-Powell found the joint form of landholding to prevail ; in the Eastern Region and the Southern Triangle, where this proportion is relatively higher, the *raiya*t*wari* form of landholding prevailed. This correlation, however, is not a causal relationship, for in the structure of both the joint and the *raiya*t*wari* forms of landholdings in pre-nineteenth century India, there was little room for the existence of a large and distinct class of landless labourers. The clues to the evolution of this class are, therefore, to be found in the factors that led to the disintegration of the traditional agrarian society—that is in the land policies pursued by the British in India since the closing years of the eighteenth century in particular and in the general economic evolution of India during the nineteenth and twentieth centuries in general.

A number of students of Indian economics have advanced the view that a rapid growth of population in India is responsible for the increase in the numbers of landless labourers. It should be patently obvious that such a view, depending primarily on a more or less uniform pattern of population growth for the whole of India, cannot even superficially pretend to touch the problem of explaining such distinctly different regional patterns of growth in the numbers of agricultural labourers. The explanation, therefore, has to be sought, in factors other than an easy reference to population growth.

The land settlements introduced by the British in India between

⁸ *Ibid.*, p. 8.

1793 and the middle of the nineteenth century fall under three main types. The Zamindari settlement which created large individual landlords was introduced in the Eastern Region (excluding Assam) in 1793; the *raiyyatwari* settlement which dealt with individual landholders was introduced in the Southern Triangle, whereas the *mahalgari* settlements, which dealt neither with large individual landlords nor with small peasant landholders but with the village elders in their capacity as landlords, was introduced in the Great North. In all these settlements, the traditional institution of village community was completely side-tracked and the manner and mode of revenue payment were overhauled. However, the general pattern of the *raiyyatwari* and *mahalgari* land settlements was not altogether different from the pre-nineteenth century forms of landholding in the Southern Triangle and the Great North. Zamindari settlement, however, was entirely different.

Under the Zamindari settlement, former tax-gatherers (known as Zamindars), who were no more than mere agents of the former governments appointed for the collection of land revenue, were by the Act of 1793 declared full proprietors of the areas over which their rights of land revenue collection extended. Such a decision by Lord Cornwallis of Yorktown "fame" was taken despite the strong objections put forward by Shore and James Grant (Jr.) in their long and laborious minutes.⁹ The reasons for so rudely dispossessing millions of landholders and turning them overnight into tenants-at-will are buried deep in what R. H. Tawney called "the dust in the forgotten lumber-rooms" of history. However, to understand the present, it is necessary to disturb the long-settled layers of this dust.

Lord Cornwallis himself declared in one of his circulars dated September 18, 1789, and quoted by M. Kovalevsky in his hitherto untranslated scholarly work in Russian, *Obschinnoye Ziemlevladyenie: Prichini, Khodi i Posled'stviya ego Razlozheniya*:¹⁰

⁹ Das, Abhaya Charan, *The Indian Ryot, Land Tax, Permanent Settlement and the Famine*, (Calcutta, 1881), pp. 13 f., 24.

¹⁰ Kovalevsky, M., *Communal Landholding: the Causes, Course and the Results of its Disintegration*, (Moscow, 1879), pp. 161ff. It is to be regretted that this scholarly work has not been translated in any other language. His chapter VII

I am fully convinced that the Zamindars have the most unquestionable proprietorship of the land. I am also convinced that even if they did not have the right to the proprietorship of the soil, the *well-being of the society would compel us* to acknowledge it in them. I do not even consider it necessary to pass a judgment on the grounds of their claims to private ownership of the soil. (Italics mine—S.J.P.)

Thus, by the force and authority of the British Government in India millions of cultivators were transformed, almost overnight, from peasant proprietors into tenants-at-will. In the whole history of mankind, ancient or modern, one would look in vain for a parallel to this classic example wherein so many were sacrificed in such a short time so that a few may prosper and rule.¹¹

The essential difference between the *raiayatwari* settlement in the Southern Triangle and Zamindari and *Mahalwari* in the rest of India consisted in this : under the *raiayatwari* settlement, the individual cultivator was given title to land which was inheritable, transferable and otherwise alienable without the sanction of the government ;¹² whereas under the zamindari, he had no such right and under the *mahalwari* system, his right was restricted.¹³ This difference is of very great significance in our discussion.

III

With the above background, we shall review briefly the major economic changes that took place in the agrarian society during the nineteenth century and how they affected cultivation and handi-

on "British Agrarian Policy in East India and its Effect on the Disintegration of Communal Landholding among the Indians" is still one of the best accounts which shows in bold relief the role of British land policies in India.

¹¹ For other statements to the effect that landlords were created as supporting pillars of British rule in India see A. B. Keith (ed.), *Speeches and Documents on Indian Policy*, (Oxford University Press, 1922) I, 159, 215, also Kovalevsky, *op. cit.* p., 162.

¹² Baden-Powell, *The Land Systems of British India* (London, 1892), III, 128 ff., 269, 403, 498.

¹³ Baden-Powell, *The Indian Village Community*, p. 429.

crafts, the supporting pillars of Indian rural economy. Since a study of handicrafts is beyond the scope of this article, we will merely take note of the fact that imports of cheap manufactured goods had nearly destroyed the handicrafts and thus, in the absence of any other occupation, forced the artisans to turn to land for their livelihood.¹⁴ Most of these displaced persons had to work as agricultural labourers.¹⁵ Now we shall draw attention to cultivation.

With the introduction of British land settlements, the individual cultivator, especially in the *raiayatwari* areas, was called upon to pay a fixed sum of cash assessment. The cultivator "who had never handled coin before in his life was required to pay to his government twice a year a fixed sum of money—crop or no crop".¹⁶ If the cultivator failed to pay the revenue in time, his land was made subject to forfeiture. In the early days, when cash crops, commercial agriculture and circulation of money in the countryside had barely begun to develop, the farmer, even though not poor otherwise, was poor in pecuniary terms. As Colonel Sykes remarked about conditions of people eighty to a hundred miles inland from Bombay : ¹⁷

There is no doubt, however, that the poverty complained of is not the poverty of want. This poverty is pecuniary poverty and it bears heavily on him in the relation in which he stands to the government and his creditors. He cannot convert a superfluity of grain into money to pay his taxes to the former, and to fulfil even part of his engagements to the latter.

In pre-British India, as the Royal Commission on Agriculture pointed out, "land had been practically unsaleable. Land was totally

¹⁴ Gadgil, D. R., *The Industrial Evolution of India*, (London, 1929), pp. 171-74 ; also *Census of India* (1911), I, part I, 408 ; *Report of the Indian Central Banking Enquiry Committee* (1931), p. 43

¹⁵ Famine Enquiry Commission (1945), *Final Report*, p. 81 ; also *Census of India* (1911), I, part I, 429.

¹⁶ Thorburn, S. S., *Musalman and the Moneylenders in the Punjab*, (London, 1884), pp 48-50.

¹⁷ Chapman, J., in his Notes to the Draft Prospectus of the Great Indian Railway in October 1844 ; cited by Thorner, D., *Investment in Empire*, (Philadelphia, 1951), Chap. I, p. 9.

valueless unless they cultivated it ; it had no market price for no one would buy it or make advances upon it as security."¹⁸ Now land was made transferable by law ; moreover, in sharp contrast to pre-British times, legal machinery in the form of civil courts of law was created to enforce such transfers.¹⁹ All this increased the value of land as a security for monetary advances.

Besides the heavy and rigid revenue demands of the government, uncertainty of crops caused by natural calamities added to the farmers' needs for borrowing. Within a period of a hundred and thirty years of British rule in India, there were twenty-two officially declared famines, or one every six years;²⁰ of the "unofficial" famines and scarcities, there is no count.

By this time, another important factor added to the farmers' troubles. With the increase in cash crops, regional specialization and the development of grain market in the countryside, the cultivator entered "the orbit of world prices";²¹ thus, to the uncertainties of nature, for which he could at least pray to heaven or blame his past misdeeds, were added the uncertainties of world prices.

Aided by the unholy trinity—heavy cash revenue demands, famines and world price fluctuations—the money lenders, former "humble servants and accountants" now turned into what Max Weber called "virtuosos in unscrupulous profiteering", began to play a dominating role in the agrarian society.

As a result, as the Indian Famine Commission of 1901, under the able chairmanship of A. P. McDonnell, pointed out, while the government did nothing:²²

...the cultivators sank deeper into debt and their property began to pass out of their hands. *It must be admitted that the conditions on which, under the revenue system, the cultivators held their lands, helped to bring this result about. The rigidity of the revenue system forced them into debt, while the valuable property*

¹⁸ *Report of the Royal Commission on Agriculture*, p. 9 ; Choksey, R. D., *Economic History of the Bombay, Deccan and Karnatak*, (Poona, 1945), p. 187 ; Baden-Powell, *The Indian Village Community*, p. 424.

¹⁹ Choksey, *Ibid.*, p. 187 ; Thorburn, *op. cit.*, pp. 58f.

²⁰ Dutt, R. C., *Famines and Land Assessments in India*, (London, 1900), p. 1.

²¹ Anstey, Vera, *Modern India and the West*, (London, 1941), p. 290.

²² *Report of the Indian Famine Commission (1901)*, p. 107.

(land) which they held made it easier to borrow. (*Italics mine—S.J.P.*).

The same Commission noted that whereas in 1876 only one-third of cultivators in Bombay Province were reported to be in debt, in 1900 four-fifths were in debt.²² No data on agricultural indebtedness are available for the nineteenth century; but according to the various estimates, total rural debt in British India increased from Rs. 300 crores in 1911 to Rs. 1,800 crores in 1938, that is six times.²⁴ These are staggering figures.

Indebtedness means almost certain transfer of land. The Deccan Riots Commission of 1876 noted that "the instances of redemption of mortgage are almost unknown; a mortgage is equivalent to a transfer of the ryot's title."²⁵ In his evidence to the Indian Famine Commission of 1901, the Chief Secretary of the Bombay Government stated that twenty-eight per cent of the land in the Broach district had passed into the hands of the money lenders; on the basis of additional evidence, the Famine Commission concluded that at least one-fourth of the cultivators of Bombay Province had lost possession of their lands.²⁶

In his letter of February 3, 1893, Mr. A. Rogers, a member of the I. C. S. and of the Bombay Legislative Council from 1872 to 1877, disclosed that within ten years from 1879-80 to 1889-90 nearly two million acres of land held by more than eight hundred thousand cultivators as well as property worth Rupees three million were sold in auction by the government for the collection of land revenue.²⁷ The *Reports of the Bombay Land Revenue Administration* for the years 1926-27 and 1936-37 also showed that between these years five million acres or more than one-fifth of the land held by cultivators passed into the hands of the money lenders and the number of owner cultivators declined by nine per cent.²⁸

These are but some examples of available data on dispossession

²² *Ibid.*, p. 108.

²⁴ Nanavati, Sir M. B. and Anjaria, J.J., *The Indian Rural Problem*, (Bombay, 1942), p. 32.

²⁵ *Report of the Deccan Riots Commission (1876)*, para 70, 77.

²⁶ *Report of the Indian Famine Commission (1901)*, p. 103.

²⁷ Cited by R. C. Dutt, *Famines and Land Assessments*, App., p. 213.

²⁸ Nanavati and Anjaria, *op. cit.*, p. 34.

of the peasants. Many more examples can easily be added from regional and village surveys.²⁹ It was in this process that on the one hand lands of unprotected cultivators began to be concentrated in the hands of a few money lenders, and, on the other, large masses of peasantry began to roll down the social ladder as tenants-at-will and landless labourers. *It was in this process of dispossession of the peasantry that the large and distinct class of landless labourers was born.*

Concerning all the "measures" taken by the government to "protect" the cultivators, we shall be content here to cite the scathing verdict passed by the Indian Famine Commission of 1901, which was appointed by the government. The Commission concluded:³⁰

Commissions have sat and reported ; Acts of legislation have been passed and amended ; executive action of various sorts has been taken. But of all, the result has been disappointment.

In sharp contrast to this callousness on the part of the government, the Indian peasants on their part have a long, but unfortunately unrecorded, history of sporadic but bitter and bloody struggles and rebellions against the policies and the symbols of these policies which uprooted them.³¹

With this brief historical background, we may now proceed to examine the causes that may help us toward some meaningful understanding of the distinct regional patterns in the evolution of agricultural labourers. Noting the broad differences in the

²⁹ Iyengar, S. Kesava, *Economic Investigations in the Hyderabad State*, (five vols.: Hyderabad, 1931-32), I, vi, 19 ; Royal Commission on Agriculture, *Minutes of Evidence*, I, part III, 74 ; Dayal, Hari Har, in *Fields and Farmers in Oudh*, ed. by R. K. Mukerjee, (Calcutta, 1929), p. 232 ; Pillai, P., *Economic Conditions in India* (London, 1925), p. 122 ; Nanavati and Anjaria, *op. cit.*, p. 203.

³⁰ *Report of the Indian Famine Commission (1901)*, pp. 103f.

³¹ A few of them might be mentioned here. The Santhal Rebellion of 1854 ; the massive support, especially from the U. P. peasantry, given to the 1857 rebellion ; the Indigo rebellion in 1860 ; Deccan rebellion of 1874 ; twenty-two Moplah rebellions between 1836 and 1854 and five others between 1873 and 1880 ; Rampa rebellion on the Godawari Hills in 1835 and later in 1879 ; Khond rebellion in Ganham in 1835 ; Pabna and Bogra outbreaks in Bengal in 1871. *Cambridge History of India*, VI, 38, 249, 268.

proportion of agricultural labourers in various parts, the Census Commissioner for 1911 concluded :³²

That the differences are due to social rather than economic conditions, and that those provinces have most field labourers which contain the largest proportion of depressed castes.

This view that the proportion of agricultural labourers varies directly with that of the depressed classes has been generally accepted by students of Indian economics.³³ It is extremely difficult to verify these proportions for the term "depressed" classes is a loose one not easily defined.³⁴ Nonetheless, in Table 3 we have tried to show both these proportions, which, though not strictly comparable, may serve as rough indicators.

TABLE 3

THE PROPORTIONS OF DEPRESSED CLASSES AND AGRICULTURAL LABOURERS

Province	Depressed classes		Agricultural labourers
	Numbers in millions	Proportion to total population	Proportion to Agricultural population
United Provinces	12.0	26	22
Bengal	11.5	24	33
Central Provinces	3.3	24	52
Madras	6.5	15	53
Bihar and Orissa	5.0	14	35
Punjab	2.8	13	14
Assam	1.0	13	25
Bombay	1.5	8	57

SOURCES: The data concerning depressed classes from the *Report of the Indian Statutory Commission*, (1930), I, 40-1; the Commission stated that the figures are "fairly accurate" for Madras, Bombay and the C. P.; but "it is otherwise in the case of Bengal, the U. P., and Bihar and Orissa". In the case of Assam, they are largely "conjectural". The data on agricultural labourers are taken from Table 2.

³² *Census of India (1911)*, I, part I, 413.

³³ Nanavati and Anjaria, *op. cit.*, p. 14.

³⁴ For a discussion relating to these difficulties, see *Census of India (1931)*, I, part I, App. I; also, Hutton, J. H., *Caste in India: Nature, Functions and Origin*, (Cambridge, 1946), pp. 167ff.

From Table 3, it should be clear that if anything, there is a sort of an inverse (particularly at the extremes), rather than direct, correlation between the proportions of the depressed classes and agricultural labourers. The proportion of the former is the lowest in Bombay, whereas that of the latter is the highest ; on the other hand, in the United Provinces, the proportion of the former is the highest, whereas that of the latter is the lowest if Punjab is excluded. The chief explanation of the regional patterns in the proportion of agricultural labourers, therefore, cannot be seriously sought in the proportion of the depressed classes

As pointed out earlier, if the dispossession of the peasants was the chief factor in the evolution of landless agricultural labourers as a large and a distinct class, it is obvious that such a class should have the largest proportion where the land transferability was the easiest—that is in the *rayatwari* region or what we have termed the Southern Trangle ; similarly this proportion should be smaller where land transferability was very limited as in the *Zamindari* and *mahalgwari* areas, or in the Eastern Region and the Great North. What remains to be explained is the disparity between the proportion of agricultural labourers in the Eastern Region and the Great North. The chief factor for this disparity seems to be the fact that in the Eastern Region, the British administration and its land settlements together with the disintegration of the village communities and of the traditional form of agrarian society started much earlier than in the Great North.

The land settlements in Bengal, Bihar and Orissa in general were completed by the end of the eighteenth century ; whereas in the United Provinces and the Punjab, they were not completed even as late as 1850. Consequently, traditional forms of agrarian society disintegrated much earlier in Bengal, Bihar and Orissa than in the United Provinces and the Punjab. In 1899, Baden-Powell pointed out that in Bengal, "the village organization has almost completely decayed",³⁵ whereas for the Punjab he stated that "generally speaking, at the present day the tribal constitution of the agrarian society is more prominent in the Punjab than it is elsewhere."³⁶ It should be added that the smaller proportion of

³⁵ Baden-Powell, *The Origin and Growth of Village Communities*, p. 142 ; also Maine, Sir H. S., *Village Communities*, p. 153.

³⁶ Baden-Powell, *op. cit.*, p. 58.

agricultural labourers in the Great North is also likely to have been partly due to the opportunities, especially in the Punjab, of extensive cultivation by bringing more land under the plough and of intensive cultivation by the development of a vast network of canals as well as due to an alternative outlet of employment in service of the British Indian army, nearly half of which was recruited from the Punjab.³⁷

Thus, the transferability of a peasant's soil and his consequent dispossession and the rate of disintegration of the older form of agrarian society make it possible, *only in broad outline*, to understand the rapid increase in the class of agricultural labourers in India as a whole as well as in its various regions.

IV

Now, we shall proceed to examine the types of agricultural labourers. For the purpose of understanding better the ladder of social relationships, four major types, with considerable overlapping which is inevitable in a dynamic society, may be found to have evolved: (1) bonded or semi-free labourers; (2) dwarf-holding labourers, who, owing to insufficiency of income from their major occupations such as cultivation or handicrafts, are forced to resort to part-time agricultural labour as a subsidiary occupation; (3) under-employed labourers, whose *only* occupation is agricultural labour, but who are unable to find full-time employment; and (4) full-time "free" wage labourers.

At the lowest step of the ladder stand the semi-free or bonded labourers. The dwarf-holding labourers on the second step occupy the position to which bonded labourers, through acquiring a strip of land to cultivate as tenants, try to rise, or to which persons from other occupations "sink" on account of the ruin of their once full-time occupation. This second step is thus either a point of "elevation" from the lowest stage or a point where outsiders enter the class of agricultural labourers, thus constituting a reserve for the third or the fourth types. If their tenuous hold over their old occupations is weakened further, they "rise" to the third step where agricultural

³⁷ *Report of the Bengal Land Revenue Commission* (1938) mentions that nearly one and a quarter crore of Rupees were obtained by the Punjabis in the form of military pensions alone, p.93.

labour becomes their prime occupation, even though it is insufficient to provide them full-time employment. The moment they find full-time employment, they climb to the fourth or the highest stage of the ladder. It should not be imagined that there is only one-way, that is upward, traffic on this ladder.

The primary concern of the pages that follow will be to indicate, in broad outline, what proportion of agricultural labour force is to be found at each of these stages and to show that, even though all these types co-exist in all parts of India, certain types predominate in certain regions ; at this stage, space does not permit us to go into a general description of their living and working conditions, methods of receiving remuneration, etc.

1. BONDED OR SEMI-FREE LABOURERS

In the economic literature dealing with agricultural labourers, this class has been generally designated as "agrarian serfs".³⁸ It is true that such labourers, though free *de jure*, work under conditions which resemble those of serfdom and, in some cases, of slavery. It should be pointed out, however, that freedom is not denied to them through the exercise of force by feudal aristocrats, as was the case with feudal serfs. Neither are they like the Greek or the Roman slaves, who were largely prisoners, captured from defeated armies or conquered territories ; nor are they like the Negro slaves, who were turned into an article of trade by ruthless man-hunting expeditions. These differences make it necessary to examine the nature of their bondage and its causes in somewhat greater detail.

It is generally agreed that the immediate cause of acceptance of such bondage in India at present is the need on the part of labourers to secure advances of money.³⁹ Thus what appears to be an immediate cause is monetary and not so much the combined sanc-

³⁸ Wadia, P.A. and Merchant, K T. *Our Economic Problem*, (Bombay, 1945), pp. 253 ff. ; Nanavati and Anjaria, *The Indian Rural Problem*, p. 15 ; also Lorenzo, A. M., *Agricultural Labour Conditions in Northern India*, (Bombay, 1947), Part II, pp. 55-93. These labourers are known in different parts of India by a number of names such as *hali*, *izhva*, *cheruma*, *puleya*, *holha*, *padiyal*, *pannial*, *pathiram*, *gassigulla*, *bhagela*, *sanwak*, *harawah*, *jeetha*, *barasalia*, *kamiya*, *janour*, *gothi*, *naga muliya*, etc.

³⁹ *Report of the Royal Commission on Labour in India*, (London, 1931), p. 362.

tions of custom, tradition and personal power of the master. The relationship between the labourer and the master should not have been, under normal conditions, different from that of a debtor and a creditor. The reasons for present bondage, therefore, are to be found in the particular evolution of the Indian society in the last century and a half, during which the would-be debtor has become so desperate and creditor so exacting that what would have normally been a free and legally equal position between two equal parties, mutually executing a contract of debit and credit, has, in reality, turned into a status of virtual slavery for the former and absolute dominance by the latter. Since a monetary loan is the characteristic of bonded labour system, it should be distinguished very sharply from slavery or feudal serfdom. This type of "monetary bonded labour" could not have existed in an essentially non-monetary economy of pre-nineteenth century India.

In such an earlier society, there were menials and domestic servants whose subsistence was guaranteed by an allotment of certain acres of land, or by granting them the claim to a certain proportion of the produce of each cultivator.⁴⁰ These traditional arrangements of guaranteed subsistence weakened considerably during the period of disintegration of village communities; the displaced menials, in the absence of alternative occupation, were forced to seek *some* form of guaranteed subsistence. It was this compulsion that forced the menials to accept bondage. The advance of money, for marriage or any other purpose, was more in the nature of mutual recognition that the system of bondage was approved by both parties. To say, therefore, that marriage, and the advance of money which is generally used for it, are the cause of the institution of bonded labour is like saying that exchange of wedding rings between a man and a woman is the cause of their marriage.⁴¹

Thus, the disintegration of the village communities brought

⁴⁰ Baden-Powell, H., *The Indian Village Community*, (London, 1896), pp. 16f.

⁴¹ If, as in most cases, the advance of money was for marriage, it does not show that marriage was the cause of accepting such bondage. In fact, marriage serves merely to emphasize the dividing line in the life of the labourer between his dependence on his parents and his seeking subsistence on his own. For a similar system in China under which, instead of an advance of money, a 'slave' girl was used by the master, see Institute of Pacific Relations, *Agrarian China*, (Chicago, 1938), p. 83.

about the "liberation" of depressed classes from the *traditional*, self-perpetuating, form of bondage ; but, in the process, it destroyed the basis of guaranteed livelihood. Owing to the absence of alternative means of subsistence, they were forced to accept even the worst conditions of work for securing a livelihood. The relationship thus evolved, was a *new* form of bondage. The traditional serfs were "liberated" to be re-enslaved. As Professors Thomas and Ramakrishnan remarked : ⁴²

Unemployment and under-employment have grown so serious that serfdom is not so much feared as the lack of any certain means of livelihood.

Such an analysis of the nature of bondage leads us to the conclusion that the greater the *opportunities of earning a livelihood without accepting bondage, the smaller the basis for the existence of the system of bonded labour*, despite the continuation of marriages and at times of borrowing money for marriages. This conclusion is borne out by the fact that emigration to plantations or other industries, that is seeking of alternative avenues of occupation, is leading to a breakdown of this system.⁴³

It is not very easy to be very precise about the regional preponderance or the actual numbers of bonded labourers. All the existing accounts describing this system, however, indicate that it is generally more prevalent in certain parts of southern and central India, that is in the *Southern Triangle* and in Bihar and Orissa, where the proportion of agricultural labourers is very large. On the whole, the bonded labour system as generally described, even though it may exist in some form, is not much prevalent in Bengal, U. P., Punjab and the N. W. F. P., that is, where the proportion of agricultural labourers is relatively much lower. Thus, *the system of bonded labour is prevalent precisely in those regions where, due to a much larger proportion of landless labourers, opportunities of securing a livelihood are more scarce.* ⁴⁴

⁴² Thomas and Ramakrishnan, eds., *op. cit.*, p. 351.

⁴³ *Ibid.*, pp. 421, 261; also Royal Commission on Agriculture, *Report*, p. 362 and *Minutes of Evidence taken in the Madras Presidency*, III, 341 ; Mukhtyar, G., *Life and Labour in a South Gujarat Village*, (Bombay, 1930), p. 161; Sinha, Lakshman Prasad, *Indian Journal of Agricultural Economics*, III-1, 40 also p.23.

⁴⁴ It should be noted here that most authors have attributed the survival of

The actual number of bonded or semi-free labourers is not easy to determine. The 1921 census returns gave separate data for agricultural labourers (farm servants) who were hired on a *more or less long-term basis*; these formed nearly one-seventh of total agricultural labourers⁴⁵

Considering that the system of bonded labour was to be found largely in certain parts of South and Central India, it may be safely assumed that nearly half of these farm servants, or one-fourteenth of total agricultural labourers, were bonded labourers. On this basis, one may conclude that the number of bonded labourers in 1931 was not more than three million. Bearing their small number in mind, it should be clear that whatever significance they have in the literature on agrarian economy is clearly not due to their numbers, but to the manner in which their existence indicates the re-enservment of a certain section of agricultural population under the conditions of "under-developed" or, more precisely speaking, *arrested economy in India*

2. DWARF-HOLDING LABOURERS

There is a large body of persons who have not been classified as agricultural labourers in the Census Reports; however, in reality, their status is either indistinguishable from that of labourers or, at least, owing to an inadequate income from their own occupation, they have to seek work on fields as a subsidiary occupation. All petty-cultivators, generally cultivating less than five acres of land, come under this category; in contrast to landless labourers, they are "dwarf-holding" labourers. As the Census Report of 1901 stated, the petty cultivator is "a tenant, a farm-servant and a field labourer all rolled into one".⁴⁶ Among these petty cultivators, there are some whom it is hard to distinguish from agricultural labourers. The Royal Commission on Agriculture remarked that "in many cases, the tiller of land is subject to conditions which make his

bonded labour system to a greater concentration of depressed and aboriginal class. Mukerjee, Radhakamal, *Land Problems of India*, (London, 1933), p. 226; Wadia and Merchant, *op. cit.*, p. 253. This, however, is an over-simplification.

⁴⁵ *Census of India (1921)*, I, part II, 211.

⁴⁶ *Census of India (1901)*, I, part I, 205. For a similar position of dwarf-holding labourers in China, see the article by Sun Hsiao-tsun's in *Institute of Pacific Relations, Agrarian China*, p. 71.

status approach much more closely to that of a labourer than an independent cultivator".⁴⁷ The bargadars in Bengal, who generally pay one-half of the produce to the lessor, were expressly declared by the Bengal Tenancy Act of 1928 to be agricultural labourers.⁴⁸

In the Zamindari regions, this reduction of the cultivators to a status of agricultural labourers was brought about by the growth of a high degree of sub-indentation between the original *Zamindar* and the final cultivator. "Zamindars, lessees, sub-lessees, mortgages and sub-mortgages", noted the *Cambridge History of India*, "increased and multiplied. In village after village layers of middlemen interposed between the cultivators and the Zamindars."⁴⁹ The Indian Statutory Commission of 1928 found cases where the number of intermediaries, each of them fattening at the expense of the cultivators, exceeded fifty.⁵⁰ The results underlying this process were emphasized by the Royal Commission in these words :⁵¹

The lack of alternative means of securing a living, the difficulty of finding any avenue of escape...combine to force the cultivator to grow food *wherever he can and on whatever terms he can*. (Italics mine—S. J. P.)

It was the weakness of the tenant's position that forced him to cling to land on any terms. This context formed a fertile ground for the rapid growth of share-cropping. In an important article in the *American Sociological Review*, Ramakrishna Mukerjee has proved that the system of share-cropping gave the absentee landlords a greater margin of profit than what they would get by employing landless labourers.⁵² The tendency, therefore, was not

⁴⁷ *Report*, p. 582. Also see Madras Provincial Banking Enquiry Committee, *Report*, (1930), pp. 14f. ; *Census of India* (1931) VII, part I, 195 ; also Dayal, Hari Har, in *Fields and Farmers*, in *Oudh*, ed. R. K. Mukerjee, pp. 267, 281.

⁴⁸ Bengal Land Revenue Commission, *Report*, (1938), pp. 67 ff.

⁴⁹ *The Cambridge History of India*, VI, 30.

⁵⁰ *Report*, (1930), I, 340.

⁵¹ Royal Commission on Agriculture, *Report*, p. 433.

⁵² Mukerjee, Ramakrishna, "Economic Structure of Rural Bengal: A Survey of Six Villages", *American Sociological Review*, December, 1948, p. 664 ; also *Sankhya* (1946) VII, part III.

toward an intensive exploitation of the soil, but toward that of the tenant on the soil.

It is difficult to determine the actual number of petty cultivators in India. This difficulty is increased by the fact that owing to differences in fertility of the soil, irrigation, etc. there is little precision in the concept of a dwarf-holding in India. Since, however, the average unit of cultivation in India is nearly five acres, a small patch indeed, we have regarded all farmers cultivating less than five acres as dwarf-holders.

For the Punjab, the Royal Commission on Agriculture summarized the position of units of cultivation thus: 22.5 per cent of the farmers cultivated one acre or less, 15.4 per cent between one and two and a half acres, 17.9 per cent between two and a half and five acres and 20.5 per cent between five and ten acres.⁵³ Thus, more than one-half the holdings were below five acres. We have no such data on units of cultivation for other parts of India. However, if this was the situation in the Punjab where the average number of acres per cultivator was 8.8, it is not difficult to see that the extent of dwarf-holding is bound to be much greater in Madras, Bengal, Bihar and Orissa, U P. and Assam where the average number of acres per cultivator is smaller than in the Punjab. According to the estimates of the Famine Enquiry Commission of 1944-45, 64 per cent or nearly two-thirds of the farmers in Bengal cultivated less than five acres.⁵⁴ On this basis, one can safely conclude that *more than half the farmers in India cultivate less than five acres, that is, are dwarf-holders.*⁵⁵ A very large proportion of these are tenants-at-will and share-croppers.

Concerning regional differences, it is clear that we find proportionately more tenants-at-will and share-croppers where there are fewer landless labourers, as for example in Bengal, Bihar, the U. P. and the Punjab. In other words, the *landless labourer of raiyatwari region (Southern Triangle) had the dwarf-holding share-cropper and tenant-at-will as his counterpart in the Zamindari and Mahalwari regions.* In the former, the cultivator was expropriated

⁵³ Report, p. 133.

⁵⁴ Famine Enquiry Commission, *Report on Bengal*, (1945) pp. 6f; App. I.

⁵⁵ Dr. V.K.R.V. Rao estimated that in provinces other than Bombay, more than 60 per cent of the cultivators appear to own less than five acres each. *National Income of British India*, (London, 1941) p. 190.

from the land; in the latter he was exploited on the land. Thus, it appears that though there are distinct regional differences in India if landless labourers are taken into consideration (see Table 2), these differences do not seem to be as sharp if all landless persons (both landless labourers and tenants-at-will who have no right to land) are taken into account.

There are no adequate figures on the extent of land cultivated by tenants-at-will, most of whom are share-croppers. The Bengal Land Revenue Commission estimated that about one-fifth of the land in Bengal was cultivated under the *barga* or share-cropping system.⁵⁶ In a number of districts, however, as much as one-third of the land was reported to be cultivated under the *barga* system.⁵⁷ On the basis of an extensive sample survey by the Indian Statistical Institute, Ambica Ghosh found that the area under share-cropping in 1945-6 was nearly 25 per cent instead of 20 per cent as in 1938; more than 35 per cent of cultivators were involved in the system of share-cropping.⁵⁸ For Bihar, Sir Manilal and Anjaria estimated that 20 per cent of the sown area was cultivated by share-croppers.⁵⁹ According to the estimates of the Bengal Land Revenue Commission, nearly half of the cultivators of the Punjab are tenants-at-will and share-croppers.⁶⁰ From the preceding evidence, it may be safely assumed that between one-third and one-half of all these cultivators are dwarf-holding tenants-at-will and/or share-croppers, that is, dwarf-holding labourers.

3. UNDER-EMPLOYED LANDLESS LABOURERS

We have already discussed the cases of bonded or semi-free labourers who are *tied to land-owners* and the dwarf-holding labourers who are *tied to land*; in both the cases, the most important cause in their evolution as specific types was the lack of alternative means of employment under the condition of the "arrested"

⁵⁶ *Report of the Bengal Land Revenue Commission*, pp. 50, 84.

⁵⁷ Bengal Provincial Kisan Sabha, *Memorandum to the Bengal Land Revenue Commission*, pp. 42 f.

⁵⁸ Ghosh, Ambica, "Agricultural Labourers in Bengal", *The Indian Journal of Economics*, January, 1948, p. 438.

⁵⁹ Nanavati and Anjaria, *The Indian Rural Problem*, p. 41.

⁶⁰ *Report of the Bengal Land Revenue Commission*, I, 92; II, App., VII, 39-40.

to four months. For the rest of the year, they are under-employed, or completely unemployed.

The monotonous emphasis on the inadequacy of statistical information needs no reiteration here. It was indicated above that nearly one-seventh of the total agricultural labourers were employed more or less on a long term basis (both as bonded as well as "free" wage labourers); it follows, therefore, that the rest are in this type of under-employed labourers. Thus, nearly 35 million of total agricultural labourers belonged to this type in 1931. The regions where this type is most prevalent can be only suggested. Obviously, they predominate in the *Southern Triangle*, the land of the landless labourers *par excellence*; it is no coincidence, therefore, that the major currents of seasonal migration originate here and in Bihar.

4. FULL-TIME "FREE" WAGE LABOURERS

This type of labourer is composed of two categories: plantation labourers employed by plantation owners, and employees of other capitalistic and well-to-do farmers. Unlike the employers of other types, the employers of this type are capitalistic and well-to-do farmers whose main interest in cultivation is to secure profits rather than living on rents from land.

Since most of the plantations were situated in very thinly populated areas, it was at first very difficult to attract a sufficient number of labourers. Consequently, planters, most of them British, resorted to a system of recruitment about which W. Nassau Lees rightly remarked that "the horrors of the slave trade pale before the horrors of the coolie trade of Assam and Cachar in years 1861-62".⁶⁷ The system changed little during the following years. A Commission appointed by the British Trade Union Congress trenchantly remarked in 1928 that "in Assam tea, the sweat, hunger and despair of a million Indians enter year by year".⁶⁸ The Report of the recent Labour Investigation Committee showed that the position, even

⁶⁷ Lees, W. Nassau, *The Land and Labour of India: A Resurvey*, (London, 1867), pp. 203-5.

⁶⁸ General Council of the Trade Union Congress of Great Britain, *Report on Labour Conditions in India*, (London, 1928), p. 36.

as late as 1946, was very little different.⁶⁹

The continued use of the old penal contract forms or of new forms resembling them, virtual prohibition of labourers' contact with the outside world, collusion between planters in the form of "labour rules", and the absence of any strong organization on the part of these labourers combine to impose such restrictions on them that, in effect, their position becomes almost indistinguishable from that of the bonded or semi-free labourers.⁷⁰ It is not surprising, therefore, that these labourers have been characterized as a kind of serfs or bonded labourers.⁷¹ The labourers' actual working conditions undoubtedly tend to justify such a view. Nevertheless, there are strong reasons for differentiating them sharply from bonded or semi-free labourers.

First of all, they are employed by capitalist farmers. Secondly, unlike bonded labourers, they are paid mainly in cash. Thirdly, restrictions on these labourers are partly due to the fact that the British Government of the country not only overlooked but even encouraged such dominance of plantation owners who were mostly British. As the Labour Investigation Committee itself warned: "The plantation industry can hardly hope to continue much longer in its present happy position in which it is neither controlled by government, nor limited by the activities of the trade unions."⁷² Finally, in sharp contrast to the bonded labourers who work for separate masters, the plantation labourers, like other factory workers, work together in thousands in close contact with each other. Even though the present restrictions on them make it nearly meaningless to call them free labourers, there is little doubt that the objective conditions under which they work cannot but create a situation in which they, backed by a growing trade union organization among them, would soon be able to assert their freedom—an opportunity which is more remote for the bonded labourers. For these reasons, it is considered proper and necessary to classify the plantation labourers as "free" labourers.

The numerical size and regional location of this type are not difficult to determine. The Labour Investigation Committee gave

⁶⁹ Report, (New Delhi, 1946), p. 183.

⁷⁰ *Ibid.*, pp. 184-7.

⁷¹ Dutt, R. P., *India To-day*, (Bombay, 1949).

⁷² Report, p. 194.

a figure of 1.1 million for them in 1946.⁷³ The regional location needs little explanation here, for it is governed not by any historical, economic or social factors, but by climatic and soil requirements. It is important, however, to note that the areas from which these labourers are drawn have the largest concentration of bonded and under-employed labourers.

In the second category of this type of "free" wage labourers are included other agricultural labourers who are employed by well-to-do and capitalist farmers on a more or less long-term basis. Up to now, very little attention has been given to a study of the development of capitalist agriculture, which though unlikely to extend to any sizeable proportion of the total land cultivated in India, does represent, even in an embryonic stage, a highly significant phenomenon within the agrarian society and thus merits greater study.

In a study of the rural economy of British Gujarat, M. B. Desai found that in 1931-32, 7.9 per cent of the area was cultivated by the help of labourers hired on a long-term basis; in 1941-42, it fell to only 5.8 per cent.⁷⁴ Similarly, Professors Thomas and Radhakrishnan point out for Madras that the cultivation "with the aid of farm-servants, which was in vogue in 1916-17, has been slowly giving way to lease of lands on share or fixed rents".⁷⁵ On the basis of a wide sample survey in Bengal, Ambica Ghosh disclosed that only 5.1 per cent of the land surveyed was cultivated by fully hired labourers.⁷⁶ The above evidence indicates that if less than 6 per cent of the land in Gujarat, which is among the most prosperous agricultural regions in India, was cultivated by full-time hired labourers, it is unlikely that for India as a whole more than five per cent of land would be cultivated with this type of labourer. Since the unit of cultivation in such cases is bound to be larger than average, it is reasonable to suppose that capitalist farmers are much less than 5 per cent of total cultivators, probably between one and two per cent.

As pointed out earlier, one-seventh of total agricultural labourers

⁷³ *Ibid.*, p. 182.

⁷⁴ Desai, M. B., *Rural Economy of Gujarat*, (Oxford University Press, 1948), p. 154. He concluded: "There is no tendency toward capitalistic farming in Gujarat.", pp. 151ff.

⁷⁵ Thomas and Ramakrishnan, eds., *op. cit.*, p. 349.

⁷⁶ Ghosh, Ambica, *Indian Journal of Economics*, January, 1948, p. 432.

were calculated to be employed on a long-term basis ; somewhat less than half of them, or nearly three million were bonded labourers. Therefore, the number of full-time free wage labourers in 1931 may be placed somewhere between three and four million. The places where this type predominates can only be suggested. They are likely to be found in the areas supplying dairy products, fruits, vegetables and such other products to cities and big towns, or where commercial crops such as tea, coffee, sugar, cotton, jute, tobacco, etc. are grown, or where modern methods of irrigation have been developed.

V

We have briefly reviewed the process of the manifest disintegration of the traditional form of agrarian society in India. The most striking end-result of this dramatic change is the emergence of a distinct and large class of landless labourers, whose proportion to the agricultural population rose from about 13 per cent in the last decade of the nineteenth century to 38 per cent in 1931, that is, virtually tripled.

For a proper understanding of the contemporary agrarian society, more detailed information about its social composition is necessary. Notwithstanding this serious limitation, the data presented in Table 4 throw considerable light on the social pyramid in the agrarian society, especially at its base.

For those who have conceived of India as a land of individualistic peasant proprietors, it would be a rude shock to find that over seventy per cent of the agricultural population has *no rights* to land; that nearly two-fifths of it are landless labourers and a third of it are dwarf-holding labourers both of whom struggle to escape absolute starvation by working under serf-like conditions on the lands owned by a small number of large land-holders. No wonder that the cultivators in India are poor and that the per acre productivity is very low and falling. In a social context wherein exploitation of *persons*, desperately seeking to subsist, is placed at a higher premium than that of the *soil* itself, widespread emergence of improved methods of cultivation is clearly out of the question.

TABLE 4

THE COMPOSITION OF THE AGRARIAN SOCIETY IN INDIA, 1931

<i>Item</i>	<i>Number in million</i>	<i>Per cent</i>
<i>A. Social Composition :</i>		
Total Agricultural working population of which	111	100.0
I. Rent receivers	4	3.6
II. Cultivating more than five acres of which	28	25.3
(a) Owner cultivators	18	16.3
(b) Tenant cultivators	10	9.0
III Dwarf-holding labourers of which	37	33.3
(a) Petty proprietors	10	9.0
(b) Tenants-at-will and share-croppers	27	24.3
IV. Landless labourers of which	42	37.8
(a) Bonded labourers	3	2.7
(b) Under-employed labourers	35	31.5
(c) Full-time "free" wage labourers	4	3.6
<i>B. Those with no rights to land :</i>		
Total under II (b), III (b), and IV	79	71.1

SOURCE: 1931 data in Table 1. The distribution of figures on owner cultivators and tenant cultivators between groups II and III here is estimated on the basis of the evidence and conclusions of the section dealing with dwarf-holding labourers.

The rural structure of the older India has given way ; no return to it seems possible. This profound transformation of the older India, perhaps the most thorough going social change in India's long history, underlines the day-to-day scene in the contemporary

Republic of India and Pakistan and helps to attain some meaningful understanding of the problems and tasks they face in the future. ⁷⁷

⁷⁷ It is illuminating to note here the brilliant remarks made by R.H. Tawney in 1938 in connection with a not altogether dissimilar context in China. He wrote: "The improvement of agricultural methods is, no doubt, indispensable; but it is idle to preach that doctrine to cultivators so impoverished by the exactions of parasitic interests that they do not possess the resources needed to apply it. In the Europe of the nineteenth century, the reconstruction of the legal fabric of the land system preceded the modernization both of productive technique and the business side of farming; nor, in the absence of the former, would the two last have been possible. China, it may be prophesied, will find it necessary to follow the same sequence of stages. Land-tenure will require to be reformed and the stranglehold of the usurer and middlemen to be broken before much can be expected in the way of technical progress. ...To carry through such a policy will demand, not only knowledge, but a stout heart and a firm hand; but it would open the door to a new era of Chinese history."

To this, he added his now prophetic warning: "A government which permits the exploitation of the mass of its fellow-citizens on the scale depicted in the pages which follow may make a brave show, but it is digging its own grave. A government which grapples boldly with the land-question will have little to fear either from foreign imperialism or from domestic disorder. It will have as its ally the confidence and good will of half-a-million villages." Institute of Pacific Relations, *Agrarian China*, (Chicago, 1938), p. xviii.

LONG-TERM CHANGES IN OUTPUT AND INCOME IN INDIA : 1896-1960*

STARTING from the pioneering work of Dadabhai Naoroji, the Grand Old Man of India, for the year 1867-68, a number of attempts have been made over the last three-quarters of a century to estimate the national income of India. Over a dozen of these estimates, some of them quite comprehensive whereas others mostly in the form of some general notions on *per capita* income, are summarized below in Table 1. The names of the various estimators suggest that the foremost of India's intellectuals and administrators were drawn toward the problem of measuring the sum-total of economic activities in the country. This was not just the result of the pull exercised by intellectual curiosity alone. Experience had shown that the results produced by them served as valuable ammunition in the developing battle between nationalist ideas and foreign rule. The figures on *per capita* income, this handy expression of a country's economic life into neat and easily remembered numerals, was at once used by people on both sides of the battlelines to prove either the disastrous consequences of British rule over India or to impress upon the unbelievers the supreme benefits flowing from it. It is no wonder that towards the close of the last century, William Digby, in a classic example of statistical polemic, had printed in gold on the spine of his *magnum opus* his estimates of average *per capita* daily income in British India, thus:¹

1850—2d.

1880—1½d.

1900—¾d.

*Reprinted from the *Indian Economic Journal*, Vol. V, No. 3, January, 1958.

¹ Digby, William, "*Prosperous*" *British India*, (London, 1901); Thorner, Daniel, "Long-term Trends in Output in India" in Kuznets, S. S., ed., *Economic Growth—Brazil, India and Japan*, (Duke University Press, 1955).

TABLE 1
PAST ESTIMATES OF NATIONAL INCOME IN INDIA

<i>Estimated by</i>	<i>Year</i>	<i>Total income (bill. Rs.)</i>	<i>Per capita income (Rs.)</i>	<i>Agricultural output as % of total</i>	<i>Comments</i>
Dadabhai Naoroji	1867-8	3.4	20	77	For most of British India; material production excluding most of services
Baring and Barbour	1882	5.5	27	67	For British India; all non-agricultural income assumed to be one half of agricultural income
Curzon	1897-98	6.8	30	67	As above
W. Digby	1899	4.1	18	64	For British India; agricultural income assumed to bear a fixed relationship to land revenue; material production excluding services
Fred J. Atkinson	1875	5.7	27	55	For British India
	1895	8.8	35	57	"
Sir B. N. Sarma	1911	—	50	—	"
Wadia and Joshi	1913-14	—	44	—	"
Vakil and Muranjan	1910-14	—	59	—	For the whole of India
Findlay Shirras	1921	—	107	—	For British India
Shah and Khambhata	1921-22	23.6	74	89	For the whole of India; material production excluding services
V. K. R. V. Rao	1925-29	—	76	—	For British India
	1931-32	16.8	62	53	"
R. C. Desai	1931-32	28.1	82.5	62	For the whole of India; consumer expenditure only
Central Statistical Organisation	1948-49	86.7	247	49	For the Republic of India
	1954-55	99.1	262	46	"

SOURCES: Digby, William, "Prosperous" *British India*, (London, 1901); Atkinson, J. Fred, "A Statistical Review of the Income and Wealth of British India" in *Journal of the Royal Statistical Society*, LXV (1902); Shah, K. T.,

Against this background, it was natural that the estimates unfavourable to the Government of the day were followed by those that upheld its benefits. The net result, as a glance at the summary of the major estimates would indicate, was that even when the separate attempts related to the same year or to not too distant periods, the differences between the estimates of *per capita* incomes were very wide indeed. For instance, Lord Curzon's estimate of *per capita* income in British India for 1897-98 was two-thirds higher than William Digby's estimate for the following year.

Apart from the personal predilections of the various estimators, there were also important conceptual differences among them which made their results very divergent. Thus, the estimate of *per capita* income made by Baring and Barbour was a third higher than that by Dadabhai Naoroji mainly because Baring and Barbour attempted to cover services whereas Dadabhai Naoroji left them out on principle. The important influence of these conceptual differences as well as of the methods used in estimating is evident even in more recent times; R. C. Desai's estimate of *per capita* consumer expenditure (thus excluding net public and private capital formation and free public services to the ultimate consumer) for 1931-32 was a third higher than Professor V. K. R. V. Rao's estimate of *per capita* income for the same year.

Added to these was the fact that the estimates were in current prices and were, therefore, not comparable without adjustments for price changes. Since most of them were limited to a year, they could not be used even after making price adjustments for the purposes of determining long-term trends because of the very considerable influence of natural factors in showing a very high or low agricultural output for the year chosen.

However convincing the results of one or the other estimator

and Khambhata, K. J., *Wealth and Taxable Capacity of India*, (Bombay, 1924); Rao, V. K. R. V., *An Essay on India's National Income, 1925-1929* (London, 1939), and *National Income of British India, 1931-1932*, (London, 1940); Desai, R. C., "Consumer Expenditure in India, 1931-32 to 1940-41" in *Journal of the Royal Statistical Society*, CXI, Part IV (1948), and Central Statistical Organisation, *Estimates of National Income 1948-49 to 1954-55* (New Delhi, April 1956).

might have been to their contemporaries, they remain singularly uninformative in discerning the long-term trends in economic growth in India. Notwithstanding the impressive array of the names who have contributed in this quest, none of the results is in a form that can provide even an approximate answer to a simple question such as: Has the real *per capita* income increased or not over the last seventy-five years or so?² If even a qualitative general answer to this is not possible, it is vain to ask for more specific replies: at what rates has it changed over these decades?

This is in no way to detract from the merits of these studies for each of them no doubt contributed a great deal in building up a body of knowledge about various branches of economic activity in the country. Even when the picture they presented was a static one, our knowledge of the anatomy of the country's economy would have been considerably more imperfect without them. The study of long-term trends in output and income in India, however, remains yet to be made. This paper is directed toward outlining an approach to this problem and suggesting some tentative estimates (in 1952-53 prices) needed for an understanding of the course of economic development in India over the past half a century.

I

Although the authors of the various estimates shown above used widely divergent approaches for estimating non-agricultural income, they all had one thing in common. All of them, with the notable exception of William Digby,³ used roughly the same procedure to

² When Shah and Khambhata tried to relate their estimate of per capita income of Rs. 74 for 1921-22 to the previous estimates, all they could do was to state: "These figures somewhat agree with Rs. 21 for 1871 (Dadabhai Naoroji), Rs. 27 for 1882 (Baring and Barbour) and Rs. 30 for 1901 (Lord Curzon). But they do not agree with Rs. 18 for 1898-9 or Rs. 17 for about 1900 (Digby), Rs. 50 for 1911 (Findlay Shirras), Rs. 86 for about 1914 (B. N. Sarma), or Rs. 46 for 1921 (Professor Shah)." Shah, K. T. and Khambhata, *Wealth and Taxable Capacity of India*, (Bombay, 1924), p. 201. Incidentally, the estimate mentioned last was Professor Shah's own estimate!

³ William Digby brushed aside the official statistics on area under cultivation, yields per acre and prices as of little use. "The government

estimate income originating in agriculture, or in fact the value of agricultural output.

The estimates of agricultural output were based on the data furnished by the annual series, *Estimates of Area and Production of the Principal Crops*, which began to be issued in the closing decades of the last century. While its territorial coverage was somewhat limited in the initial years, the basic data on per acre yields, etc. furnished by it were supplemented by the more comprehensive information on acreage sown in nearly the whole of British India and many of the Indian States given in the *Agricultural Statistics of British India*. The estimates of the value of agricultural output provided nearly two-thirds up to the 1920's and around a half for later years of what total each estimator put together as the national income of India (see Table 1).

The problems involved in estimating non-agricultural income were complex indeed. Some of the estimators (Baring-Barbour and Curzon) had a neat though not very convincing solution to this. Since the population engaged in all other non-agricultural occupations was half of that in agriculture, they simply took all non-agricultural incomes also to be one-half of their estimates of the value of agricultural output, thus assuming equal per man productivity in both these sectors.⁴ Others (Dadabhai Naoroji, W. Digby and Shah and Khambhata) made some attempt to estimate the value of the output of large-scale factory industries and of small-scale cottage industries, but excluded all the services.⁵ Their estimates, formulated on the basis of the Physiocratic concept of material output, find a close conceptual parallel in the estimates prepared in the Soviet Union, eastern European countries and the

revenue (from land)", he stated, "is assumed to bear a definite ratio to the assumed (or ascertained) produce of the soil reckoned over a number of years....It is approximately ascertainable and I have ascertained it as nearly as may be. Possessing it, to arrive at the money value, I have multiplied the land revenue, the necessary number of times, and have thus reached the results I announce." *op. cit.*, pp. 611-14.

⁴ Shirras, G. Findlay, *Science of Public Finance*, (3rd ed., London 1936), I, 245.

⁵ Professors K. T. Shah and Khambhata set out at length their reasoning for the exclusion of services. They stated :

"All services have to be and are rewarded ultimately from the same dividend (yearly total) of material commodities produced in a nation....When

People's Republic of China of what is called the net material product.⁶

Those who attempted to estimate the income from small enterprises, commerce, transport and other services faced an uphill task. In this quest for comprehensiveness, each of the estimators devised his own ingenious methods to attain perfection; the results of this highly individualistic guess-work differed widely making it impossible to piece all their efforts together to provide some overall long-term view. It would be of little use to derive an arithmetic average of their estimates for the non-agricultural sectors; nor is it possible now to construct a sample survey on a grand scale to ascertain the average income in these sectors for, the dead men fill in no forms and answer no questions.

It is clear that any workable approach to discern historical trends would have to start with what was common in all the previous estimates—the value of agricultural output based on physical quantities. To this could fairly easily be added the value of the production in the factory industries and the mines. These accounted for over 55 per cent of the total net income as estimated by the Central Statistical Office since 1948-49; their proportion in the total in the earlier years could not have been lower and most probably was higher.

For the rest of the sectors, we do not have at present adequate

we have measured the material commodities, we must necessarily be taken to have included also the services—not only those which are actually, obviously, directly involved in the production of these commodities, but also those which are ancillary or incidental to that production (such as the Government Official Soldier) ...”

“There is not a shred of excuse to speak of the non-industrial services (i.e. services which do not result in material production) as being measurable in money. They result only in such utilities as advice, knowledge, guidance, pleasure, comfort, relief from pain, assistance, protection, encouragement, order, stability, organisation, etc. which being psychic, are non-measurable. These, therefore, though a species of income in the broad sense, cannot enter into a computation of the national dividend.” Shah, K. T., and Khambhata, *Wealth and Taxable Capacity of India* (Bombay, 1924), pp. VII, 35. For an answer, Rao, V. K. R. V., *The National Income of British India 1931-1932* (London, 1940), pp. 10-14.

* For somewhat detailed discussion, see Patel, S. J., “Growth in Income and Investment in India and China,” *The Indian Economic Review*, February 1957, pp. 55-58.

basis to make estimates over a fairly long period of time. The omission to cover these items is only omitting the impossible at this stage and thus would present little choice. The quest for the so-called comprehensiveness, however admirable it may be, had at least this direct negative effect ; there was no serious attempt in India so far to put together what was at least fairly ascertainable over a period of years. It is indeed revealing that while the absence of long-term data on national income has been so loudly bemoaned, little research talent has so far been directed toward constructing fairly comparable series of agricultural and factory output for the period for which these data have been available. A somewhat less dogmatic approach to this elusive comprehensiveness would probably have yielded meaningful results earlier.

In this connection, Professor S. S. Kuznets' rather acid comments on some of the recent attempts at estimating national income and constructing social accounts in various pre-industrial countries, are quite pertinent.

"The attempts," he stated, "all too frequent in recent years, to fit the scanty data of many underdeveloped countries into strait-jackets of elaborate social accounts proliferated in the developed countries, have proven useful in that they indicated how little we know—if that is the lesson which the compilers and users draw. But would it not be more fruitful, in the longer run, to admit that only some of the aspects of economic life in the underdeveloped countries, or in the earlier phases of the developed ones, are measurable ; and to attempt to measure them in such a way as to secure a reasonable portrayal of basic levels and trends ? To illustrate, if we find that in earlier phases in the United States and in many countries to-day, only income embodied in commodities can at all be approximated, let us measure this part as exclusively as we can and not manufacture out of whole straw estimates of income arising in services."⁷

The preceding discussion and Professor Kuznets' comments suggest a point of departure that can be fruitfully used to construct estimates of long-term trends in output and income. This is undertaken in the next two sections.

⁷ Kuznets, S. S., ed., *Economic Growth : Brazil, India and Japan*, (Duke University Press, 1955), p. 10.

II

The long-term trends in the net value of the output of agriculture, factory industries and mines from 1896 to 1960 are shown in Table 2. By and large the data put together in this paper are based on the existing statistical material and thus represent little original research; we have only tried to supply some of the major gaps in the available series, particularly to link them with official data for the Second World War and post-war years, and to combine them in constant prices by applying the 1952-53 price data to them. The sources and methods used are discussed in somewhat greater detail below.

AGRICULTURAL OUTPUT

As pointed out above, except for Mr. William Digby, all the estimators have relied heavily on official estimates of crop forecasts, area and yield for deriving agricultural incomes. Considering the nature of the data handled and the methods that had to be devised, it is quite probable that the estimates of crops suffer from various weaknesses and may understate or overstate the actual output in many instances.⁸ It is, however, difficult to ascertain these errors and assign them any definite notions in terms of margins of error. The only workable solution, it seems, is to use averages for a fairly long period so that the influence of errors involved in the statistical estimates as well as of the sharp fluctuations in agricultural output caused by natural factors such as weather, pests, etc. may be minimized. In this paper, the data are shown in decennial averages.

The index numbers of agricultural output (crops only) are based on a recent study by George Blyn, which is probably the most comprehensive attempt so far at estimating the volume of agricultural crops for the whole of India for the years 1893-94 to 1945-46.⁹ Among the food crops, it covers rice, wheat, barley, jawar, bajra,

⁸ It is interesting to note in this connection that in the first attempt to indicate margins of error for various sectoral incomes, V. K. R. V. Rao showed the agricultural income with no margin of error. See his *National Income of British India 1931-32* (London, 1940), Table 52, p. 186. In the body of text, however, he infers that agricultural output was subject to an underestimate of 10 per cent, *Ibid.*, p. 185. See also footnote 2 on p. 13.

⁹ Blyn, George, *The Agricultural Crops of India, 1893-94 to 1945-46: A Statisti-*

ragi, maize, gram and "other foodgrains and pulses"; and among the commercial crops, it includes linseed, sesamum, rapeseed, mustard seed, castor seed, groundnuts, sugar-cane, cotton, jute, indigo, coffee, tea and tobacco. The indices are constructed by applying to the output of each of these crops, adjusted for changes in territorial coverage, the average prices for the quinquennium 1924-29 to 1928-1929.

As a result of the more comprehensive coverage of food crops by Mr. Blyn, his indices avoid the very serious distortions caused by applying an unduly high weight to the commercial crops, as was the case with the fairly long-term (1909 to 1935) series on the volume of agricultural output prepared by Dr. D. B. Meek for a paper he read before the Royal Statistical Society in 1937.¹⁰ In Chapter II of his study, Mr. Blyn has described in detail the sources and the methods used in his calculations. It is indeed a pity that this important study is not yet available in a printed form.

Blyn's index numbers ending in 1945-46 have been linked to estimates of the volume of agricultural production for later years for the Republic of India.

cal Study of Output and Trends, (unpublished manuscript, South Asia Regional Studies Department, University of Pennsylvania, 1951).

The summary results of Blyn's study were cited by Daniel Thorner in his paper "Long-term Trends on Output in India," in Kuznets, S. S., ed., *Economic Growth: Brazil, India and Japan* (Duke University Press, 1955), pp 120-124.

¹⁰ The upward bias given by applying higher weights to commercial crops is obvious if Blyn's index numbers of total agricultural output are compared with Meek's :

	1909-1915	1916-1925	1926-1935
Meek's data	100	105	112
Blyn's data	100	102	104

This difference is largely explained by the inadequate coverage of foodgrains and hence a relatively much higher weight given to commercial crops by Meek ; foodgrains were given a weight of 68 and other crops of 32 for the period, 1909-1915. If Blyn's data on foodcrops and commercial crops are combined using Meek's weights, then the resulting index numbers would be : 104 for 1916-1925 and 109 for 1926-1935—that is slightly lower than Meek's indices. The slight difference is in part the result of Blyn's more comprehensive coverage of crops and of adjustments for territorial changes. For Meek's paper, see "Some Measures of Economic Activity in India" *Journal of the Royal Statistical Society*, Part III, 1937, Table II, p. 369.

OUTPUT OF FACTORY INDUSTRIES AND MINES

The index numbers of industrial and mineral production used here were given by D. B. Meek in his paper cited above.¹¹ His series for industrial production were for the years 1896 to 1932 and for mining for the years 1909 to 1935. Industrial production covered the following groups: cotton manufactures, jute manufactures, woollen manufactures, paper, breweries and iron and steel. Dr. Meek's series were extended to 1938 in the League of Nations study, *Industrialisation and Foreign Trade*.¹² The series were linked to estimates for war and other missing years and official index numbers for post-war years.

VALUE AT 1952-53 PRICES

Combining various series is always a complex task. The net value of output of agricultural and factory industries in 1950-51 (in 1952-53 prices)¹³ was applied to the indices of output of these sectors for the six decades since 1896. Two important assumptions are involved in this mode of calculation: one concerns changes in territorial coverage and the other relates to the differences between the value of gross and net output.

(a) The question of territorial coverage is particularly important for the estimates for the period since 1947 when India was divided into India and Pakistan. It is difficult for an individual research worker at this stage to construct series for pre-1947 years that would only apply to the present territories of the Republic of India. Since only the index numbers (and not the physical quantities) pertain-

If Meek's weights for 1909-15 are taken as a true reflection of the position at that time (1909-1915), the relative weights for the decade 1946-1955 would be foodcrops 55 and commercial crops 46; the comprehensive estimates of the National Income Committee, however, indicate them to be 67 and 33—the proportion, which in fact corresponds to the results shown by Blyn's indices. See *Report of the National Income Committee* (New Delhi, 1954) p. 36.

¹¹ Meek, D. B., *op. cit.*, pp. 371-373; these also suffer from inadequate coverage and point to the need for more comprehensive estimates.

¹² League of Nations, *Industrialisation and Foreign Trade* (1945), Table III, pp. 133-135.

¹³ Planning Commission, *Second Five-Year Plan: Draft Outline*, (New Delhi, 1956). p. 26.

ing to pre-Partition India and to post-Partition India have been linked, it is unlikely that they seriously misrepresent the actual course of developments before 1947.

(b) The problem of expressing the index numbers showing the gross volume of output into net values in constant prices is more complex. It involves the assumption that over these six decades the net value of output has formed roughly the same proportion of its gross value. In the case of agriculture, this would certainly not be true if between the two years compared, there are violent fluctuations in output caused by natural factors. The share of net value of agricultural output in its gross value would be considerably higher in the year with higher output than in that with the lower one; this is obviously the result of the fact that the deductions which are made for deriving net output are more or less constant—that is, they are not subject to the same fluctuations which are caused in gross output by natural factors.¹⁴ The use of decennial averages would, however, tend to minimize the importance of this factor.

It may be imagined that the changes in technology, labour productivity, utilization of excess capacity and differential rates of change in the prices of raw materials and finished products should be expected to have important repercussions on the relationship between gross and net value of industrial output. But the data for nearly 70 years for the United States indicate that the share of net value added in manufacturing to the gross value of output has fluctuated very slightly around 40 per cent, without showing any definite upward or downward trend.¹⁵ In the case of India, we do not have similar data for the period referred to in this paper. The results of the census reports on manufacturing industries for the years 1946 to 1953, however, show that the net value added in manufacturing formed around 30 per cent of the gross output: in this case again, the small fluctuations in this proportion do not indicate any consistent trend.¹⁶ It may be pointed out that this

¹⁴ According to the calculations of the National Income Committee, the share of net value of agricultural output in its gross value has varied between 80 to 90 per cent between 1948 to 1950. *Final Report of the National Income Committee*, (New Delhi, 1954), p. 45.

¹⁵ Creamer, Daniel, *Capital and Output Trends in Manufacturing Industries, 1880-1948*, (National Bureau of Economic Research, paper No. 41, 1954), p. 18.

¹⁶ Summary results of the census reports shown in the *Indian Trade Journal* (Dept. of Commercial Intelligence, Calcutta); Supplement, March 31, 1956.

TABLE 2
LONG-TERM CHANGES IN NET OUTPUT IN INDIA : 1896-1960
(annual average in 1952-53 prices)

<i>Items</i>	1896- 1906	1905- 1915	1916- 1925	1926- 1935	1936- 1945	1946- 1955	1960 plan ¹⁹
<i>Billions of Rupees</i>							
Foodgrains	28.1	28.8	28.6	27.3	27.2	27.5	34.0
Commercial crops	6.7	8.0	9.1	11.1	11.9	13.7	18.0
Agricultural crops	34.8	36.8	37.7	38.4	39.1	41.2	52.0
Factory industries	1.3	2.0	2.6	3.5	5.6	6.5	13.8
Mining	0.2	0.3	0.4	0.5	0.7	0.8	1.5
Industry and mining	1.5	2.3	3.0	4.0	6.3	7.3	15.3
Total above	36.3	39.1	40.8	42.4	45.4	48.5	67.3
<i>Rupees</i>							
Per capita output	158	159	164	155	144	136	164
<i>Index numbers—1896-1905=100</i>							
Foodgrains	100	103	102	97	97	98	121
Commercial crops	100	120	136	166	177	204	270
Agricultural crops	100	106	108	110	112	118	149
Factory Industries	100	154	200	270	430	500	1060
Mining	100	133	176	220	280	346	650
Industry and mining	100	153	200	267	420	487	1020
Total net output	100	107	112	116	124	133	185
Per capita output	100	101	104	98	91	86	104
Population ²⁰	100	107	108	119	134	154	178
<i>Decennial Rates of Percentage Growth</i>							
Foodgrains	3	-1	-5		1		23
Commercial crops	20	14	22	7	15		32
Industry and mining	53	30	33	58	11		110
Total net output	7	5	4	7	7		39
Per capita output	1	3	-6	-7	-5		21
Population	7	1	10	13	15		14

(Sources and other notes are at the foot of the facing page)

period in India was marked by very considerable, in fact very violent, changes in the utilization of excess capacity, labour productivity and price relatives between raw materials and manufactured goods. In the light of the above, one cannot be far too wrong in using the decennial index numbers of the gross volume of industrial and mineral production for the period 1896 to 1955 to reflect the changes in the net value of industrial output for this period.

From the qualifications made above, it is obvious that the data shown in Table 2 are very approximate and can only be used to indicate the broad order of magnitudes involved. While it is not within the scope of this statistical study to attempt an explanation of the trends in the value of agricultural and industrial output indicated in Table 2, some general observations may be made here ; a proper evaluation of these trends would clearly need a more detailed study of the social, economic and political history of last few decades.

(1) The most striking feature about the changes over the last six decades is the markedly slow expansion of agricultural output. On the whole, agricultural output increased by only 18 per cent during these six decades, whereas the total population increased by over a half. No matter how crude these estimates may be, it is obvious that

SOURCE : Data on agricultural output based on George Blyn's unpublished study, the main contents of which are cited by Daniel Thorner in his "Long-term Trends in Output in India" in S. S. Kuznets, (ed.), *Economic Growth : Brazil, India, Japan* (Duke University Press, 1955), pp. 120-24, data on factory output for 1896-1932 from David B. Meek, "Some Measures of Economic Activity in India," *Journal of the Royal Statistical Society* (London, 1937), Part III, for 1932-38 from League of Nations, *Industrialization and Foreign Trade* (1945), pp. 133-135 ; and for later years from U. N. *Statistical Yearbook* 1949-50, p. 132 and recent issues of the *Monthly Abstract of Statistics*, the same sources are used for mineral output. Data on population from U. N. Demographic Yearbooks.

NOTE : Indices from the above publications have been linked in continuous series, values in 1952-53 prices obtained by applying these index numbers to national income data given in the Planning Commission, *Second Five Year Plan : Draft Outline*, (New Delhi, 1956), p. 26. For other details, see text.

¹⁷ Data for 1960, related to average for 1946-55 ; on a straight line basis of growth, 1960 may be considered to represent an approximate average for the decade 1956-1965.

¹⁸ Based on census years, thus assuming that the population in a census year represents an approximate average for the decennium which covers roughly equal periods prior to, and after, the census year.

per capita agricultural production fell during this period ; the decline was by nearly a third. This seems to be in line with the fact that *per acre* yields have not significantly altered during this period and the acreage sown has increased by only around a tenth.¹⁹

(2) The really depressing factor in the sluggish movement in agricultural production has been the output of foodgrains, which has remained virtually stagnant during this period. With this is associated the fact that over this period India became a net importer of foodgrains instead of a net exporter as in the early part of the twentieth century. In view of the sharp increase in population during this period, these changes suggest that the *per capita* availability of foodgrains declined by a quarter to a third.²⁰

(3) The output of commercial crops, on the other hand, more than doubled during this period. Since the first decade for which data have been shown here, its share in the value of total agricultural output has risen steadily from less than a fifth to around a third in more recent years.

(4) Output of factory industries and mines also expanded during this period, the expansion being much sharper during the decades which cover the years of the first and the second World Wars. Its share in the total of net agricultural and industrial production increased from less than 5 per cent in the early twentieth century to nearly fifteen per cent in recent post-war years.

(5) The changes in agricultural and industrial output and popu-

¹⁹ This refers only to British India and does not take into account changes in double-cropped area.

²⁰ M. Boverup, my colleague in the Economic Commission for Europe, wonders whether such a sharp fall in *per capita* food supplies could have really taken place over this period without provoking Malthusian checks to population growth or at least altering price relationship between food and commercial crops so as to discourage the expansion of the latter. It may well be that Blyn's index numbers of foodgrain output—the only series so far available with relatively more satisfactory coverage—understate crop production to some extent. Perhaps another independent effort to study the long-term trends in agricultural output may help narrow the range of uncertainty in this field.

It may be added here that the fall in *per capita* supplies of foodgrains by a quarter to a third need not imply an equal fall in the intake of calories, calculated on the basis of the foodgrains actually used for human consumption. The decline in calorie intake would no doubt be smaller as a result of a more pronounced fall in wastage of food—at times amounting to a tenth of the available supplies—and in the use of grains as feed for animals (including dogs).

lation were reflected in a decline in *per capita* real output, which rose a little during the first three decades, but showed a pronounced fall by about a seventh thereafter.

(6) Against this sombre background, it is revealing to view the targets set for the Second Five-Year Plan. While the data shown in the Table refer to 1960-61, the last year for the Second Five-Year Plan, they can be construed to represent the average for the decade 1956-1965 on the basis of an assumed straight-line growth. The net effect of three five-year plans (1950 to 1965), if fulfilled, would thus be to reverse the fall in *per capita* agricultural and industrial output and bring the average level for the decade 1956-65 up to the level that was prevalent in the late nineteenth and early twentieth centuries.

III

Since the data shown in Table 2 cover only agricultural and industrial production, it is obvious that they cannot give a full picture of the net material output as defined by Dadabhai Naoroji, W. Digby and Shah and Khambhata or of net national income as defined by V. K. R. V. Rao and the National Income Committee in recent years. The output originating in animal husbandry, forestry and fishing and in the small enterprise sector would have to be added to correspond to the definition of net material product used by Naoroji and others; and the value of services in the commerce, transport, communications, professional and domestic services and the Government sectors would have to be added to make the long-term estimates comparable with the more recent ones.

This is admittedly a very difficult undertaking. The recent estimates of the incomes originating in many of these sectors, particularly in commerce and professional and domestic services, are built on very shaky grounds; the margin of error assigned to these sectors by the *National Income Committee*, was *no less than one-third of their estimated value*.²¹ With such a high margin of error, these estimates can hardly be considered more than "informed" guesses.

²¹ *Final Report of the National Income Committee*, (New Delhi, February 1954) p. 146. The awareness of uncertainty in this field seems to have increased with the passage of time; for Rao had assigned margins of error of 15 to 20

In order to obtain an approximate impression of changes in national income over the period covered in this study, one may venture to suggest some rough and ready criteria to construct the estimated values for incomes originating in all sectors other than agriculture, factory industries and mines. These incomes are to a large extent functionally related to the output of commodities in the agricultural and industrial sectors and it is most unlikely that the changes in them would be significantly different from those in agriculture and industries. This is likely to be the case particularly in India where during the last six decades the changes in agricultural and industrial output and in the occupational pattern of the population were very small indeed.

Thus, for instance, the income from animal husbandry and from the small-scale enterprises sector may be taken (in the absence of other more reliable guides) to have changed in line with agricultural output (although not industrial output which supplies some competing goods), whereas the incomes in commerce, transport and communications may have reflected proportionately the changes in the total value of marketed food crops, commercial crops and industrial and mineral output. Other services may be assumed to have changed in accordance with the total of agricultural, industrial and mineral output.

This version of inter-relationships between these sectors may seem to be a crude simplification. Yet, this is roughly what has taken place during the period 1948 to 1955 for which detailed figures on annual changes in the national income are available. During this period, the small-scale enterprises accounted for 9 to 10 per cent of total national income and about a fifth of agricultural income; commerce, transport, etc. formed 17 to 18 per cent of total national income and around a third of the agricultural and industrial income; whereas all other services constituted 15 to 16 per cent of the total and 28 per cent of agricultural and industrial incomes. It may be added that on the whole the increases that have taken place in agricultural and industrial output during this short period are nearly as large as the changes over the preceding 50 years; there is, therefore, ground for suggesting that the simplified hypothesis of sectoral interrelationships does not involve very extravagant

per cent in his study completed some fifteen years prior to the publication of the *Report of the National Income Committee*. See Rao, *op. cit.*, 186.

TABLE 3
ESTIMATES OF LONG-TERM CHANGES IN NET INCOME IN INDIA : 1896-1960
(Annual averages in 1952-53 prices)

Item	1896-1905	1906-1915	1916-1925	1926-1935	1936-1945	1946-1955	1960 plan
<i>Net commodity output</i> <i>Billions of Rupees</i>							
1. Agricultural crops	34.8	36.8	37.8	38.4	39.1	41.2	52.0
2. Other agriculture	6.7	7.1	7.2	7.4	7.5	7.9	9.7
3. Factories and mines	1.6	2.3	3.0	4.0	6.3	7.3	15.3
4. Small enterprises	8.3	8.8	9.0	9.7	9.3	9.8	10.8
Total above	51.4	55.0	57.0	59.0	62.2	66.2	87.8
<i>Service income</i>							
5. Commerce, transport, etc. ¹¹	10.8	12.2	13.2	14.8	16.7	18.5	23.0
6. Other services ¹²	12.1	12.9	13.4	13.9	14.9	15.8	21.0
Total above	22.9	25.1	26.6	28.9	31.6	34.3	44.0
7. Net domestic product	75.0	81.0	84.0	88.0	94.0	101.0	135.0
<i>Rupees</i>							
8. Per capita income	325	330	340	320	300	280	330
<i>Index Numbers : 1896-1905 = 100</i>							
9. Commodity output	100	107	111	115	121	129	171
10. Services	100	110	116	125	138	150	192
11. Total domestic product	100	108	112	117	125	135	180
12. Per capita income	100	101	105	98	92	86	101

NOTE : The estimates for other agriculture (including animal husbandry, ancillary activities, forestry and fishing), small enterprises and the whole service sector are very crude approximations and should, therefore, be taken to indicate the order of magnitudes only. The relationships used for the estimates are : other agriculture and small enterprises as 16 per cent and 20 per cent respectively of total agriculture ; 1950-51 net value of commerce, transport, etc. adjusted in line with changes in the value of marketed food grains (one-third of total food grains), commercial crops and in the output of factories and mines ; and other services as 28 per cent of the total value of the output of agriculture, factories and mines. For other details, see text and Table 2.

¹¹ Very crude estimates ; see note above and text.

assumptions—particularly so when it is remembered that the margins of error for the estimates of income in the small-scale enterprises and service sector, even in recent years, are very high indeed.

The long-term trends in national income of India (at 1952-53 prices) on the basis of the hypothetical adjustments along the lines indicated above would appear to be as shown in Table 3.

The index numbers of total income and *per capita* income in this table are not altogether different from those for agricultural and industrial output shown in Table 2 ; only the absolute levels are higher because of the addition of estimates for small-scale enterprises and services. The pursuit of this elusive comprehensiveness has probably been at the expense of greater reliability ; but then, it may yet have its own intrinsic appeal to the purist !

PART II

RESOURCES FOR ECONOMIC GROWTH

INVESTMENT AND EFFICIENCY IN INDIAN RAILWAYS DURING THE SECOND FIVE-YEAR PLAN*

THE recent strain on the external balance of payments and difficulties in raising agricultural output have led to a considerable amount of confusion concerning the very basic postulates of the Second Five-Year Plan. If 1956 was the year of boldness and audacity, 1957 may well be considered a year of pause and reconsideration. The total plan outlay and its allocation among the various sectors are now being reexamined in the light of these developments. Underlying the various proposals for reconsideration, however, is the general acceptance of the need for carrying out the "core" of the plan, relating to steel and engineering industries and transport, particularly the railways, and trimming only the fringes. Although this is basically a sound approach, it has distracted from raising the question whether the targets for the core of the plan can be attained with a different, perhaps somewhat lower, allocation of investments. This question is particularly relevant for railway investments where, as suggested in this study, a more intensive utilization of the railway network and rolling stock can be expected to lead to sizeable savings in investments and foreign exchange.

By any standard, the gross outlay of about Rs. 1,200 crores for the railways, planned for the period 1956-1960, is a very large sum. It is nearly a quarter more than the total "capital investments" of Rs. 974 crores in railways at present. It amounts to a fifth of the public outlay, and to over 40 per cent of the outlay for the "core" of the plan. The annual average investment is as high as nearly three-fourths of the annual gross revenue of the railways¹ and

*Reprinted from the *Indian Economic Review*, February, 1958.

¹ By comparison, gross investments in railways amounted to less than a fifth of its gross earnings in most west European countries in recent years; the exceptions were Austria, Belgium, France, the Netherlands, Norway and Yugoslavia where the proportion was between a third and a half owing to either extensions of the network or to a concentration of investments on electrification

more than twice the annual average investment contemplated in the fifteen-year plan for the modernization and reequipping of British railways. The proposed outlay would also make heavy demands on the foreign exchange resources.²

1. THE RATIONALE OF RAILWAY INVESTMENTS

The railways are after all the largest single modern undertaking in India and the sheer size of the investments need not therefore by itself be a cause for concern. They are a highly capital intensive enterprise, particularly if new lines are to be constructed. Among most of the pre-industrial countries, India has a fairly well-developed railway network, although, by comparison with other industrialized countries, it is small in relation to the area as well as the population of the country. The main emphasis of the railway investments during the Second Plan, however, is not on an extension of the network.

"Owing to the limited funds available", it is stated, "the plan does not provide for the construction of new lines to open up parts of the country at present unserved by the railways." The investments are centered on "the rehabilitation and modernization of railway assets, both mobile and immobile...so as to reduce the proportion of over-aged stock retained in service and to facilitate the removal of speed restrictions in force over obsolete portions of the track."³ There are of course provisions for building new bridges, for a slight change in tractive power from steam to diesel oil and electricity, a little addition to the network, doubling of some lines, and for staff welfare schemes. The main concentration in the plan, however, is on rehabilitation and modernization of

of the lines. Economic Commission for Europe, *Economic Survey of Europe in 1956*, Chapter V, pp. 14-15.

² From the statements in the *Second Five-Year Plan*, it is not easy to find the exact sum involved with any degree of certainty. For instance, it is stated on page 100 that the foreign exchange requirements would be Rs. 425 crores for transport and communications (Rs. 290 crores being for the railways alone). On page 466, however, where only the railways investments are discussed, it is stated that "of the total outlay (on railways), approximately Rs. 425 crores will be required in terms of foreign exchange."

³ Planning Commission, *Second Five-Year Plan* (New Delhi, 1956), pp. 463-465.

railway assets in order to meet the expected increases in demand for railway transport. Nearly 60 per cent of the total outlay for railways is for this purpose.

Before decisions were made concerning the allocation of such a large sum for railway development, the Planning Commission emphasized that "the magnitude of resources to be provided for the programme of the railways for the Second Five-Year Plan has received close study and attention. The draft plan which the Ministry of Railways had prepared in line with developments in other sectors involved a total outlay of Rs. 1,480 crores. After taking into consideration foreign exchange requirements, uncertainties concerning the supply of steel, priorities within the railway plan and the claims of other sectors, the estimates have been substantially reduced. In determining the minimum allocations needed by the railways, the requirements of increased traffic have been the guiding factor"⁴

The additional demand for railway traffic can be met by expanding the capacity of the rolling stock and line and by a more intensive utilization of the existing capacity. It is striking that the second aspect is barely touched upon in the Second Plan. Full fifteen pages (pp. 458-473), giving considerable amount of statistical details, are devoted in the plan to showing the need for an expansion of the rolling stock. The discussion on efficiency, however, is confined to two vaguely worded paragraphs on page 475 about the need for raising efficiency in general ; these do not contain a single target figure, indeed any figure at all. Such a lop-sided discussion in the plan makes it obviously difficult to assess whether the decision on the expansion of the rolling stock and facilities was made after or before a thorough analysis of how much of the additional traffic could be handled by raising the operational efficiency of the existing equipment.

For countries faced with many competing demands for scarce resources, it needs no emphasis that every effort be made to utilize fully the existing capacity of the equipment and to raise the efficiency of the present rate of utilization *before* an expansion of capacity is planned for. Only in this way can the limited resources be invested in the most economic way and the rate of growth of the economy stepped up. The discussion in the plan of

⁴ *Second Five-Year Plan*, p. 465.

the ways in which the additional traffic demand is to be met is, however, quite disappointing. As a result of the total absence of any concrete analysis of the present rate of utilization of the railway equipment and of setting up targets to which it is to be raised, it is difficult to avoid the uncomfortable feeling that adequate attention was perhaps not given to this important aspect.

2. PAST TRENDS IN TRANSPORT DEMAND

It may be helpful to examine the developments in the recent period in the various sectors of the national economy and in the demand for freight and passenger transport in order to evaluate the estimates of the growth of transport demand over the Second Five-Year Plan. The relevant data are shown in Table 1.

Between 1941 and 1956, the growth in passenger traffic has lagged considerably behind the rise in the real national income. There was a slight increase in the number of passengers originating but the actual volume of passenger travel, measured in terms of passenger kilometres, barely changed at all, indicating that the average distance travelled by passengers declined a little. The net expansion in the stock of passenger carriages by nearly a quarter over this period was therefore reflected in a reduction of overcrowding and in some relief to travellers in the third class. It is striking that in this period the rise in population, real income and improvement in facilities in rail travel were not reflected in any rise in the volume of passenger travel by railways.⁶

In view of this experience, the assumed increase of 15 per cent in passengers originating over the Second Plan period may turn out to be an over-estimate. The policies pursued with respect to passenger fares can also be expected to influence the growth of passenger traffic significantly. While no categorical statement with regard to the exact extent of the growth of passenger traffic seems to be possible at this stage, it is fairly clear that the growth can be kept at a level below present estimates by using an adequate tariff policy and without hindering overall economic growth and causing

⁶ There seems to have been an increase in passenger travel by motor buses but the data are not available to indicate the extent by which this rise affected the total volume of passenger travel.

TABLE 1

GROWTH OF THE NATIONAL ECONOMY AND TRANSPORT, 1950-1960

(Index number: 1950-51* = 100)

Item	1955-56 Actual	1960-61 Plan
<i>I. National Economy</i>		
National product	118	147
Industrial and mineral output	140	228
Agricultural output	118	139
<i>II. Transport Sector</i>		
<i>a. Freight traffic :</i>		
Ton kilometres	117	—
Tons originating	115	174
Wagons loaded	115	—
Wagon stock	120	157
<i>b. Passenger traffic :</i>		
Passenger kilometres	100	—
Passengers originating	106	122
Carriage stock	124	150

SOURCE : Planning Commission, *Second Five-Year Plan*, C.S.O., *Monthly Abstract of Statistics*, September, 1957 ; and Table 2 in this study.

serious inconvenience to the population.

The volume of freight transport, in terms of both tons-originating and ton-kilometres, has moved in line with the growth of the real national income during the First Plan period. A somewhat greater rise in ton-kilometres than in tons-originating indicates that the average distance for which freight was carried increased by about 2 per cent during this period. The changes in tons-originating, wagons loaded and the stock of wagons were more or less parallel suggesting that there was no rise in the operational efficiency of railway equipment either through a fuller load-

* Since the date up to 1950-51 refers to Class I railways only, 1951-52 is used as the base year. As a result, the changes in freight traffic may be understated in relation to those in the other sectors to the extent of growth between 1950-51 and 1951-52 ; passenger traffic, on the other hand, was nearly a tenth higher in 1950-51 as compared with 1951-52 so that the index numbers here actually over-state the changes.

ing of the wagons or through a quicker handling of freight by the given wagon park.

Five years is obviously too short a period to be used as a basis for projecting the past trends into the future. The experience of various countries over fairly long periods suggests that in general there has been a close correlation between the growth in real income and the demand for freight traffic by rail. This is particularly true if during the period there were relatively minor changes in the structure of commodity output on the one hand and in the development of other competitive carriers such as inland waterways and road transport on the other. The growth of competitive means of transport is not expected to be of any real significance over the Second Plan period, but the structure of output is planned to change considerably. The emphasis on the development of industries such as coal-mining, iron and steel and cement—all of them making great demands on rail transport—would lead to a more rapid rise in the demand for rail transport than that in the real national income.

The Ministry of Railways estimated that the demand for freight traffic will rise from 120 million tons-originating to 181 million tons-originating, or by 51 per cent over the Second Plan period. The estimate was based on the planned growth of output in the various sectors of the economy. The additional requirements are to rise as follows : 20 million tons for coal, 18 million tons for steel and raw materials, 5 million tons for cement and 18 million tons for all other sectors of the economy. Without questioning the over-all estimate, there are strong grounds for suggesting that there was probably very wide divergence of opinion on this point within the various agencies connected with planning.⁷

⁷ In the *Second Five-Year Plan: A Draft Outline*, published in February 1956, two different estimates are given at two different places concerning the volume of goods traffics in the last year of the plan ; this is stated to be 162 million tons or 35 per cent above the level in 1955-56 in p. 38 in Chapter II dealing with the "Plan in Outline" (also in *Second Five-Year Plan of the Indian Union 1955-61. A Pictorial Presentation*, p. 45) and 181 million tons or 51 per cent above the 1955-56 level in p. 143 in Chapter XII dealing with "Transport and Communications". That these were not errors in printing is obvious from the fact that at both places the absolute figures as well as percentage changes are given. Presumably, the chapters and estimates therein were prepared by different Ministries within the government which had not succeeded in composing their differences.

The differences seem to have ranged between these orders of magnitude : one estimate, persistently put forward in official publications for a long time, placed the increase at 42 million tons, the other at 62 million tons or one and a half times as high as the first one. Although the former seems to have been discarded now in favour of the latter without any explanation, it is reasonable to suggest that in view of the absence of any very precise criteria for estimating, these two be taken as indicating the range of additional traffic demand. Thus, the lower limit may be set at 42 million tons of additional freight traffic or roughly a third above the level in 1955-56 and the upper limit at 61 million tons or a half above the level in 1955-56.

3. EXPANSION OF ROLLING STOCK

As pointed out above, the major emphasis in the railway plan is on rehabilitation and expansion of the rolling stock. A sizeable portion of the rolling stock of Indian railway is old and it is understandable that the railway administration would be keen to replace it. Although there may be differences in the definition of over-age stock,⁸ and in the proportion of unusable, as distinct from over-age, stock, it can be seen from Table 2 that the proportion of over-age stock to the total in India is not particularly high if compared with that in a number of European countries. Except for locomotives it is in fact considerably higher in most European countries. The programme of replacement of old rolling stock, if carried out as contemplated in the Second Five-Year Plan, would by 1960 give the Indian railways a "new look" in comparison with which the outfit of most of the railways in western Europe would indeed look shabby.

⁸ It was stated in the *First Five-Year Plan* (pp 462-3) that normal lifetime was 40 years of "economic life" for locomotives and freight wagons and 30 years for passenger carriages. The average view in 13 western European countries concerning normal lifetime of railway equipment is the same as in India for locomotives and somewhat higher for freight wagons (45 years) and passenger carriages (40 years). The International Union of Railways has suggested 35 to 45 years as normal lifetime for freight wagons and 35 for passenger coaches. Economic Commission for Europe, *Railways and Steel*, (Geneva, 1957), Chap. II.

The practice on Indian railways would thus seem to be to assign a lower lifetime to freight wagons and passenger coaches, although as suggested in footnote 11, Table 2, this may have been changed since 1951-52.

TABLE 2

PROPORTION OF OVER-AGE ROLLING STOCK IN SELECTED COUNTRIES
(in percentage of total stock)

<i>Area</i>	<i>Steam locomotives*</i>	<i>Passenger carriages</i>	<i>Freight wagons</i>
<i>Western Europe</i> ¹⁰	32	33	16
Switzerland	100	53	46
Ireland	54	50	39
Netherlands	38	40	35
Western Germany	10	26	20
Greece	21	32	20
Turkey	26	36	19
Norway	36	44	18
Finland	28	12	17
Luxembourg	23	28	11
Belgium	16	52	8
France	12	9	2
<i>India : 1950</i> ¹¹	(12) ¹¹	(28) ¹¹	(10) ¹¹
1956	31	27	18
1961	18	11	9

SOURCES : Economic Commission for Europe, *Railways and Steel*, Chapter II ; Planning Commission, *First Five-Year Plan*, and *Second Five-Year Plan*.

Although a rapid withdrawal of over-age equipment will give the Indian railways a place of pride among the railways around the world, it would perhaps be better for a poor country like India if the railways were to continue utilizing a large portion of their old rolling stock, as most other countries do, if not on the main lines with heavy traffic then at least on the secondary lines. This would lead to sizeable savings in investments if orders for new additions can be postponed, or at least to a larger capacity to handle increased traffic if the additions cannot be postponed.

* All locomotives for India.

¹⁰ For 1954.

¹¹ Data from the *First Five-Year Plan* (p. 82). According to the *Second Five-Year Plan* (p. 462) the proportion of over-age stock in 1951 was roughly as high as 26 per cent for locomotives, 36 per cent for passenger carriages and 18 per cent for wagons. Such a wide divergence in the figures for the same period would suggest a striking change in the definition of over-age stock.

According to the present plan for additions of new stock and replacement of over-age stock, the net freight wagon stock at the end of the plan period would be higher by about a third and the passenger carriage-park would rise by over a fifth (see Table 3). If the process of replacement is postponed as suggested above by transferring the over-age stock to secondary lines, the additions during the Second Plan period would raise the wagon park by over 40 per cent and the passenger carriage park by nearly a half.

TABLE 3
CHANGES IN ROLLING STOCK, 1950-1960

<i>Item</i>	<i>Locomotives</i>	<i>Passenger coaches</i>	<i>Freight wagons</i>
<i>Number in thousands</i>			
<i>First Plan period</i>			
Stock at beginning	8.2	19.2	222.4
Additions	1.6	4.8	61.8
Withdrawals ¹²	0.5	0.2	18.2
Stock at the end	9.3	23.8	266.0
<i>Second Plan period</i>			
Additions	2.3	11.4	107.2
Withdrawals	1.4	6.4	23.9
Stock at the end ¹³	10.2	28.8	349.3
<i>Index numbers : 1950-51 = 100</i>			
End : First Plan	113	124	120
End : Second Plan	124	150	157

SOURCE: Planning Commission, *Second Five-Year Plan: Draft Outline*, and *Second Five-Year Plan*.

It is interesting to compare the plan for the expansion of rolling stock to the estimates of additional traffic. A rise of more than a fifth in passenger carriages when passenger traffic is expected to rise by 15 per cent would indicate that there would be some reduction in overcrowding, even at the present level of operational efficiency of the rolling stock for passenger travel. The improvements would of course be considerably greater if most of the old stock is retained in service on lines with thin traffic and if the equipment is more intensively utilized.

¹² Derived data. ¹³ Derived data.

As an illustration, it may be suggested that if there is no withdrawal of over-age stock and the additions to stock are carried out as planned at present, the carriage-park at the end of the Second Five-Year Plan would be nearly 50 per cent higher than at the beginning of the plan and the proportion of over-age carriages in the total stock will be only around a fourth—still significantly lower than in most countries in Europe. But the demand for passenger travel is estimated to rise by no more than 15 per cent so that the scope for completely eliminating over-crowding or slowing down the programme of addition to the present park is considerable. In view of the shortage of investment resources, it would seem to be desirable to reduce the expansion of the rolling stock, and thus save on investments, rather than strive for a complete elimination of over-crowding.

The freight wagon park is planned to expand by a third, whereas the highest estimate places the increase in freight traffic in terms of tons-originating at around a half. The expansion of the wagon park at a rate lower than that of the freight traffic would imply that the operational efficiency of the wagons would have to be raised by about 15 per cent. If the programme of replacement of old stock is slowed down as suggested above, then the increase in efficiency needed to cope with the higher traffic would be less than 10 per cent. If the lower estimate of additional demand for freight traffic were to materialize, it would in fact lead to some excess wagon capacity at the present rate of utilization.

In the light of the above, it is indeed surprising to read in the plan that :

“With the resources so far allocated for railway development, the railways may not be in a position to carry all this traffic and that the facilities provided by them may fall short of requirements by about 10 per cent in respect of rolling stock and by about 5 per cent in respect of line capacity.”¹⁴

¹⁴ *Second Five-Year Plan*, p. 464. During 1957, the upward revisions in railway allocations were so frequent that the *Commerce* complained that it was “hopelessly difficult to keep track of the changes in the plan for railways” (October 12, 1957); also see the article “Contradictions in the Revised Railway Plan” in *Capital* (October 17, 1957).

This would imply that the railways are not counting on any improvement in operational efficiency of their rolling stock over the Second Plan period, although the plan contains brief and vague reference to the need for raising it.

A somewhat closer examination of the nature of the additional demand for freight traffic would seem to indicate that an increase in average efficiency would probably follow almost automatically even without an over-all effort on the part of the railways to raise efficiency in general. Nearly 70 per cent of the estimated additional freight traffic is connected with three specific industries : for instance, 20 million tons for coal, 18 million tons for steel and raw materials and 5 million tons for cement. The raw materials, including coal, for the steel industry are to be carried by special facilities created for a rapid and uninterrupted flow of traffic. These include some new lines where the only traffic of any importance would be train-loads of these materials, in most cases handled in large wagons specially designed for quicker loading and unloading. The average haul for this transport would perhaps be lower also.

Thus, the character of this new freight traffic is such that it would flow much faster than the average traffic. A very rough and ready estimate of the extent by which this new traffic would be carried with greater efficiency than the average transport operation suggests that, given the addition to the freight stock, the programme of retirement of over-age equipment and the highest estimate of additional traffic, the railways would have enough wagon capacity to handle the freight traffic without needing any effort to raise their over-all operational efficiency. This may as well be the reason why the discussion on efficiency of the railways in the Second Plan was confined to two vague paragraphs only.

4. SCOPE FOR RAISING EFFICIENCY OF RAILWAY OPERATIONS

It may be argued that the scope for a more intensive utilization of railway equipment than at present is limited. There was little advance in this field even during the First Plan. The question whether there are possibilities in this direction is difficult to answer for two reasons. In the first place, the Plan itself as well as the other discussion pertaining to the subject have so far provided no concrete facts regarding the present rate of utilization of railway

equipment and the factors that govern the possibilities of changes in the rate. In the second place, in a complex technical operation such as the railways, it is indeed not easy for an economist to suggest concrete criteria for measurement of comparative efficiency without opening himself to some technical pitfalls. With the present stresses on the economy and the imperative need to utilize scarce investment resources in the most economic manner, it is essential that, however fragmentary the material and however fragile the conceptual framework, this subject be at least opened up for discussion. The following analysis, confined to freight traffic, should thus be regarded only as a preliminary attempt to probe this unlighted corner.

TABLE 4
SELECTED INDICATORS OF UTILIZATION OF RAILWAY EQUIPMENT

Country	Average haul km.	Wagon turn- round time ¹⁴ days	Daily average wagon speed km.	Density of traffic per km. of network	
				Freight million ton km	Total million ¹⁵ traffic units
<i>Europe</i> ¹⁷					
United Kingdom	117	12.0	10	1.2	2.3
France	246	11.8	20	1.0	1.7
Western Germany	189	5.5	35	1.4	2.6
Sweden	230	5.8	40	0.5	1.0
Yugoslavia	225	4.3	50	0.8	1.4
Poland	217	5.2	40	1.8	3.1
Hungary	129	3.0	40	1.0	2.4
Soviet Union	757	6.7	115	7.1	8.2
<i>Asia :</i>					
China ¹⁸	485	3.0	160	4.2	5.2
India ¹⁹	500	12.0	40	1.0	2.1

SOURCES : Economic Commission for Europe, *Economic Survey of Europe in 1956*, Chapter V, India, *Monthly Abstract of Statistics*; China : *Razvitie Ekonomiki Stran Narodnoi Demokratii Azii* (Obzor za 1956), Moscow, 1957, p. 147 ff.

¹⁴ Calculated according to the formula : $\frac{W \times D}{L}$ where W=total wagon park, D=number of days in the year and L=number of wagons loaded during the year.

¹⁵ One passenger kilometre is considered to be equal to one ton-kilometre.

¹⁷ 1954. ¹⁸ 1956. ¹⁹ 1955-56.

Some of the data relating to the density of traffic per kilometre of the network and to the utilization of the freight wagon park are shown in Table 4 for a number of European countries and India and China. It may be pointed out that in the absence of official statistics, the calculations shown here with respect to wagon turn-round time and daily average wagon speed in India should be taken only as approximations indicating the orders of magnitude.

The rate of utilization of equipment, whether in the railways or in industries, in different countries depends on a number of factors specific to the countries which do not lend themselves easily to inter-country comparisons. With this limitation in mind, several general observations can be made on the basis of the data in Table 4 :

- (a) The density of freight traffic per kilometre of railway network in India is comparable to that in most of the European countries. It is however only a seventh of that in the Soviet Union and a fourth of that in China
- (b) Similarly, the daily average movement of wagons under load (derived by dividing the average length of the haul by the average wagon turn-round time) in India is not altogether different from that in most European countries. In fact, it is significantly higher than in France and the United Kingdom where owing to a relatively large wagon stock the need for a more intensive utilization of equipment is not very pressing. On the other hand, China and the Soviet Union furnish examples of very intensive utilization of freight rolling stock ; the daily average movement of wagons in these countries is 3 to 4 times higher than in India
- (c) A comparison of the wagon turn-round time in these various countries, however, yields interesting points of differences. The average wagon turn-round time, or the time from when a wagon is loaded until it can be loaded again, is nearly twice as high in India as in most European countries, except in the United Kingdom and France. The wagon turn-round time in China and the Soviet Union—both countries having an average haul equal to or higher than in India—is only a fourth and a half respectively of that in India.

The rather long period of the wagon turn-round time in India may be regarded as a consequence of the longer average haul and the preponderance of the slow steam tractive power on Indian railways. However, as the experience of the railways in the Soviet Union and China indicates, the importance of these two factors should not be exaggerated. Relatively a very small part of the average wagon turn-round time is taken up in the actual movement of the wagon between stations. As shown in the table below, in the Soviet Union where the average haul was about one and a half times higher than in India, only a fifth of the wagon turn-round time was taken up in 1954 in the actual movement of the wagons. For the rest of the time, the wagon was immobile either on intermediate stops, or on marshalling yards or sidings being loaded or unloaded.

<i>Item</i>	<i>Days</i>	<i>Per cent of total</i>
Wagon movement	1.4	21
<i>Immobile at intermediate stops</i>	<i>0.7</i>	<i>11</i>
Immobile at technical stations	2.7	40
Immobile in loading and unloading	2.0	38
Average wagon turn-round time	6.7	100

SOURCES : Khachaturov, T., *Voprosy Ekonomiki*, No. 3, 1956, p. 96

If the average haul of freight traffic in western Germany, Sweden, Yugoslavia or Poland were doubled, thus making it roughly equal to that in India, this would add some 250 kilometres to the wagon journey, a distance which could surely be covered in a day at a speed of only 10 kilometres per hour. The doubling of the haul in these countries would thus add about a day to the present average turn-round time which varies from 4 to 6 days—still only around a half of the wagon turn-round time in India. For the same reasons, the change in tractive power, from slow-moving steam locomotion to more rapid electric or diesel locomotion, would also make but little difference in the over-all wagon turn-round time. The efficiency of utilization of the freight wagons is thus only marginally influenced by the type of tractive power used or the length of the average haul.

The factors that have a decisive influence on the average wagon turn-round time are the extensive delays caused in loading and unloading and in shunting the wagons in marshalling yards.

In these operations, the Indian railways seem to be competing with the British and the French railways, which, having a relatively much larger stock of wagons, can afford the luxury of a long wagon turn-round time and the convenience and ease to their customers by not pressing them with completing the loading and unloading operations more rapidly. The Indian railways are in an altogether different situation as their wagon stock is relatively small and the demand for freight transport is expected to rise rapidly.

The advantages that follow from a decline in the wagon turn-round time are by no means negligible. The reduction in the wagon turn-round time by three or four days or by around a fourth or third—surely an ambitious but not a very unreasonable target—could raise correspondingly the freight carrying capacity of the present wagon park. In that case, the railways would need an expansion of their wagon stock by no more than about a sixth to meet all the additional traffic that may be generated under the maximum assumption during the Second Plan. In quantitative terms, the railways would then need some 40,000 additional wagons instead of the 107,000 contemplated in the Second Plan. There would be no need for any expansion in the wagon stock if the lower hypothesis concerning the growth of freight traffic were to materialize.

Although the example cited above is only for the purpose of illustration, its real significance would seem to be beyond dispute. A comparison of the utilization of the freight equipment in India and China in the table below—countries with considerable similari-

Item	India	China
	1955-56	1956
Freight traffic (million tons-originating)	120	246
Wagons (number in thousand)	266	95**
Tons loaded (per wagon per year)	450	2600**
Wagon turn-round time (days)	12	3

SOURCE: India: *The Second Five Year Plan*; and China: *Razvitie Ekonomiki Stran Narodnoi Demokrati Azii* (Economic Developments in the People's Democracies in Asia) (Moscow) Report for 1955, P. F. 3 and Report for 1956, P. 14 F.

** Approximate estimates based on the data in the above publications.

ties in the structure of output, and scarcity of resources for development—shows this in sharp relief.

Between 1952 and 1956, the volume of freight traffic in China doubled whereas the number of freight wagons increased by a little over 40 per cent. Thus, the rate of the utilization of freight wagons, already quite intensive in 1952, was raised by nearly 40 per cent in the four years. A railway wagon in China completes its average haul—about the same length as in India—in one-fourth the time required for an average journey in India,²¹ and moves five to six times as much freight in terms of tons-originating as in India. Part of the difference may be due to a larger average capacity of a wagon in China, although data are lacking for both the countries to compare the average wagon capacity. The differences in the economic, political and social institutions in the two countries are widely known, and these may account for part of the gap in the rates of utilization in the two countries. The gap, however, is *sufficiently wide to indicate the possibility of raising substantially the rate of utilization of railway equipment in India.*

As shown in the table below, the transport experience of Yugoslavia also indicates that the rapidly rising demand for additional rail transport was met in the main by an intensive utilization of the rolling stock. Thus, for instance, the volume of passenger and freight traffic more than doubled between 1939 and 1956, but the expansion in the passenger coach park was by only 9 per cent and in the freight wagon park by 28 per cent.

It is of course not possible for persons outside the railway administration to set up concrete targets for raising the efficiency of railway operations—in both the passenger and the freight traffic—and thus attaining a much more intensive utilization of the equipment than at present. As underlined in this study, however, there would seem to be considerable scope for raising the operational efficiency and for slowing down the plan for the replacement

²¹ The official figure for average wagon turn-round time in China seems to be exceptionally low; it may in part be due to some difference in the definition. The main reason, however, would seem to be the possibility of attaining a very high rate of utilization of equipment in the transport of the "new" traffic, following from the development of the coal and steel industries, where the goods can be moved in train-loads. The developments concerning the transport of the "new" traffic in India are also unlikely to be altogether dissimilar, as was pointed out at the end of Section 3 of this Chapter.

TABLE 5
GROWTH OF RAILWAY ROLLING STOCK AND TRANSPORT IN YUGOSLAVIA
1939-1956

Item	Units	1956	Index numbers · 1939=100	
			1948	1956
1. <i>Locomotives</i>	(thousand)	2 3	102	99
2. <i>Passenger travel</i>				
Passenger coaches	(thousand)	4 0	84	109
Passenger originating	(million)	159.1	234	272
Passenger kilometres	(billion)	7.2	191	226
3. <i>Freight transport</i>				
Freight wagons	(thousand)	68.2	120	128
Tons originating	(million)	52.0	171	246
Tons kilometres	(billion)	11.9	154	248

SOURCE : *Statistički Godišnjak* (Statistical Yearbook), 1957, pp. 230-31.

of over-age stock. It is indeed difficult to avoid the uneasy feeling that the whole plan for heavy investments in the expansion of the railway rolling stock and facilities was advanced without undertaking any serious consideration of the gains that could be obtained through their more intensive utilization. In view of the overriding need for economies in all spheres, however, it may not yet be too late to suggest that the possibilities in this direction be fully explored before proceeding further with the expansion in the rolling stock which can hardly be considered to be used intensively at present.

THE DISTRIBUTION OF THE NATIONAL INCOME OF INDIA, 1950-51*

NATIONAL income figures for India, estimated partly on the basis of the product approach and partly on the basis of the income approach, furnish information on the sectoral origin of the income. They are thus useful in finding out the amount of the income originating in each of the economic sectors, such as agriculture, industries, professions, etc. Estimates of factoral origin of income, however, are not yet available. Aware of this serious inadequacy, the National Income Committee in their *Final Report* considered the possibility of compiling adequate estimates from the income side and recommended that attempts be initiated to gather data on the payment of wages and salaries, income of the self-employed, and income derived from property in the form of rent, interest and dividends.¹ Such an estimate would be useful not only as a check for the present estimates, but would also when developed over a number of years throw significant light on the changes in the distribution of the national income among the various factors of production.

The importance of more adequate knowledge of the factoral distribution of the national income is too obvious to need further emphasis. The absence of such knowledge is a great handicap, particularly now when the reduction of inequalities has been recognised as one of the central objectives both in the First as well as the Second Five-Year Plans. If such data were available, it would be possible to evaluate the experience of the First Five-Year Plan not only in terms of how much increment of income has taken place in particular sectors but also how the various factors of production have shared in this increase. It can only be hoped that the recommendations of the National Income Committee to this effect will soon be carried out.

In the meantime, it is not impossible to make an initial

* Reprinted from *The Indian Economic Review*, February, 1956.

¹ *Final Report of the National Income Committee*, (New Delhi, February 1954), pp. 130-34.

approach to the study of the distribution of the national income by making use of the available statistics. Part of the national income statistics are in fact derived on an income basis and thus can be readily used for this purpose. For example, the entire income from domestic service and payment of wages and salaries by the public authorities can be considered wages and salaries; similarly the income of small enterprises and of professions and liberal arts can in the main be treated as the income of the self-employed.² The income from the "other commerce and transport" sector can also without much difficulty be allocated to wages and salaries, income of the self-employed, and income from property.³ All these items together accounted for roughly two-fifths of the national income in 1950-51.

For the income originating in the rest of the sectors, considerable amount of adjustments are required. Without comprehensive data, such adjustments are necessarily based on certain assumptions some of which, particularly in the agricultural sector, may only be considered heroic. For anyone familiar with the methods by which a considerable part of our present national income estimates are made, the need for such assumptions should come as no great surprise. So long as precise data are not available, the alternatives are either not to make any estimates at all, or to make some using reasonable assumptions and spelling them out.

In this paper, an attempt has been made to make the necessary adjustments and derive information on the distribution of the national income in 1950-51 among wages and salaries, income of the self-employed, and income from property. It should be emphasized here again that the purpose is not so much to find out precise figures—which in any case is not possible on the basis of available data—as to indicate the broad order of magnitudes involved.⁴ We have also tried to indicate the magnitudes of disposable income (after appropriate deductions for direct taxes)

² Part of the income from these should, no doubt, be considered as wages and salaries; but such a breakdown is not easy to make at present.

³ *Final Report of the National Income Committee*, Table 24, p. 82.

⁴ The temptation to indicate margins of error for the adjustments made here has been intentionally avoided. For those interested in getting some idea of the magnitude of the margins, attention may be drawn to Appendix II in

for each of these components of the national income.

I

The sectors for which the adjustments have to be made are : other commerce and transport, agriculture, mining and manufacturing, banking and insurance, house property, forestry and fishing. In this section, the incomes from these sectors will be recast in terms of wages and salaries, income of the self-employed, and income from property.

1 OTHER COMMERCE AND TRANSPORT

The details regarding the income in this sector, amounting to Rs. 1,400 crores,⁵ are given in Table 24 in the *Final Report of the National Income Committee*. For our purposes, the income of the "employees" amounting to Rs. 210 crores has been treated as wages and salaries. The incomes of the "employers and independent workers not assessed to income tax", amounting to Rs. 990 crores, is classified as income of the self-employed ; these are obviously small dealers whose annual earnings per employed person are in the neighbourhood of Rs. 1,500. In the category "persons assessed to tax", the income per employed person is higher than Rs. 10,000 per year ; it is reasonable, therefore, to treat this income as profits of relatively large concerns. Such income in 1950-51 amounted to Rs. 200 crores.

2. AGRICULTURE, ETC.

Income originating in this sector was Rs. 4,780 crores in 1950-51, or half of the total income. Part of it was received as income of the agricultural labourers, part as rent by the landlords

the *Final Report of the National Income Committee* (pp. 145-46) where the sector margins of error have been given in a table. These vary from a minimum of 10 per cent for mining, factory establishments, and public administration and enterprises to a maximum of 33.3 per cent for small enterprises, other commerce and transport, professions and liberal arts, domestic service and house property.

⁵ 1 crore=10 millions.

and interest by money lenders, and the residual by the owner and tenant cultivators.

(a) *Income of Agricultural Labourers*

The income of the agricultural labourers was estimated by Dr. B. Ramamurti to be Rs. 790 crores.⁶ Of this probably as much as Rs. 700 crores was received from operations connected in the main with agriculture, such as agricultural labour, cultivation of the soil, well-digging, etc. The rest would be from purely non-agricultural forms of labour.

(b) *Rent on Land and Interest on Debt*

The incomes distributed in the form of rent on land and interest on agricultural debt are among the most difficult to estimate. Presumably, a large body of relevant material, which may in future provide an adequate basis for more reliable estimates, exists in the states which have recently undertaken studies and specific legislation setting some limits to the payment of rent and interest. Unfortunately, the material has not been collated and thus is not in a shape in which it can be used for making country-wide estimates. Some of the findings of the recent Rural Credit Survey and of the Agricultural Labour Enquiry, however, provide a basis on which approximate estimates may be made.

(i) *Rent on Land.* The Rural Credit Survey broadly examined the over-all disposition of the total farm produce and came to this conclusion :⁷

As broad general percentages (derived for all crops and all classes of cultivators all over the country), it may be mentioned that about 35 per cent of the total production is sold by the cultivators, a large part of it (about 24 per cent of the total) to traders and commission agents, 15 per cent disposed

* Ramamurti, B., *Agricultural Labour : How they work and live*, All India Agricultural Labour Enquiry, Ministry of Labour, (New Delhi, 1954), p. 24.

⁷ The Committee of Direction, *All-India Rural Credit Survey*, Vol. II; *General Report*, Bombay, 1954, p. 23.

of in kind as wages or rent, and nearly 8 per cent utilized as seed. (italics added—S. J. P.)

Fifteen per cent of the total produce, or crops worth Rs. 720 crores, was disposed of by the cultivators in kind as payment of wages and rent on land. According to the findings of the Agricultural Labour Enquiry, the total wage-bill for agricultural labourers was estimated at Rs. 500 crores, of which 58 per cent (Rs. 290 crores) was paid in cash and 42 per cent (Rs. 210 crores) was paid in kind.⁸ If the wages paid in kind are subtracted from the total of payments in kind for wages and rent (Rs. 720 crores), one can easily derive the amount of rent paid in kind. This would be Rs. 510 crores.

In addition to the rent in kind, some rent is paid in cash. This may be derived on the following basis. The general findings of the numerous village studies suggest that, on the whole, the area of land rented on cash rent is at least equal to that under rent in kind and that the per acre money rent is approximately half of the rent in kind; the amount of rent paid in money would roughly be at least half of the rent paid in kind, or about Rs. 255 crores annually.

Thus, the total rent paid, both in kind and in cash, by the cultivators would amount to Rs. 765 crores or about Rs. 770 crores.

Using the findings of the Agricultural Labour Enquiry, this amount would work out at about one-third of the estimated product of the tenant cultivators.⁹ This proportion seems to accord with the general findings of the various village studies which throw some light on the over-all amount of the rent paid by the tenants.

(ii) *Interest on Cultivators' Borrowing.* As is known, there is no firm estimate of the total volume of agricultural debt and the average rate of interest paid on it. The findings of the *Rural Credit Survey*, however, offer a working basis on which such estimates may be made. From the data derived from the replies to its General Questionnaire on Agricultural Credit, the *Survey* concluded that the co-operatives supplied 3.1 per cent of the total amount borrowed

⁸ Ramamurti, B., *op. cit.* p. 17.

⁹ Agricultural Labour Enquiry, *Rural Man-power and Occupational Structure* (New Delhi, 1954). Tables in Appendix VI.

by the cultivators.¹⁰ It has given separately the amount of the loans made by various co-operative societies to cultivators and information on the volume of outstanding and overdue loans from the co-operatives.¹¹ All these add up to Rs. 102 crores. The total amount of the cultivators' borrowings, estimated on this basis, would be Rs. 3,200 to 3,300 crores.¹²

Now the average rate of interest paid by the cultivators on their borrowings remains to be determined. For this again, the findings of the *Rural Credit Survey* are of considerable help to derive an approximate answer. Examining the rates of interest in various parts of the country, the Committee of Direction of the *Survey* found :¹³

When it comes to the rate of interest, neither the money lender...nor his close associates, the landlord and (sometimes) the trader, are seen to exercise much restraint on themselves. Thus, the proportion to the total borrowings of the cultivators from private credit agencies...of such of those borrowings as bear a rate of interest of 25 per cent or more is as high as 70 per cent in Orissa, 49 per cent in Tripura, 40 per cent in West Bengal and in Himachal Pradesh, 29 per cent in Uttar Pradesh and 27 per cent in Bihar. Nor are annual rates of 50 per cent or above infrequent in certain areas ; borrowing at this high level of interest accounted for as much as 64 per cent in Jhabua, 30 per cent in Tripura, 27 per cent in Malda, 13 per cent in Hazaribagh, 10 per cent in Koraput and 9 per cent in Nainital.

The *Survey* has given in a table the "maximum stipulated interest rates" as enacted in the money lending legislation of various states; these vary from a low of 9 per cent in Hyderabad to as high as 24 per cent in Uttar Pradesh. However, the proportion of the cultivators' borrowings "at rates higher than the stipulated

¹⁰ *Op. cit.*, p. 167.

¹¹ *Ibid.*, pp. 212, 213, 215, 221.

¹² It should be pointed out that the margin of error inherent in the magnification of a small base (co-operative credit forming only 3.1 per cent of the total) to a much bigger total is necessarily large. (Later discussion of my findings shows that these were over-estimates—S. J. P.)

¹³ *Op. cit.*, pp. 173-4.

maximum" was found to be very high. "It will be seen," the *Survey* concluded, "that the proportion of borrowings at rates higher than the stipulated maximum was around 85 per cent in West Bengal, Bihar, Madras, Orissa and Hyderabad and about 65 per cent in Madhya Pradesh and Pepsu."¹⁴

It is not easy indeed to derive any average rate of interest from the statements given above. By a system of necessarily very rough weighting, however, it can be calculated that such a rate will be somewhat above 20 per cent. The figure of 20 per cent is used here as a conservative working estimate.

The total amount paid by the cultivators as interest can now be estimated. The total debt was calculated to be about Rs. 3,200 to 3,300 crores at an average annual rate of interest of 20 per cent. The interest paid would thus amount to Rs. 648 to 660 crores, or around Rs. 650 crores.¹⁵

(c) *Income of the Cultivators*

As stated previously, the income of the owner and tenant-cultivators is the residual after deductions have been made for income of agricultural labourers from agriculture, rent on land, and interest on borrowings. This would be Rs. 2,600 crores.

The estimated distribution of income from agriculture in 1950-51 is shown below.

TABLE 1
DISTRIBUTION OF INCOME FROM AGRICULTURE : 1950-51

	(in Rs crores)
Agricultural wages	760
Rent on land	770
Interest on debt	650 ¹⁶
Cultivators' income	2,600
Total	4,780

¹⁴ *Op. cit.*, p. 174.

¹⁵ The actual manner and the extent of this transfer from the cultivators depend on how much is paid in cash, and how much is paid by transfer of property either of cultivator's land or other property, or increase in his debt. There might also be defaults in a bad year which in general would be made up next year. Also see fn. 12.

(3) MINING AND FACTORY ESTABLISHMENTS

The net income, including wages, salaries, taxes, interest, dividends, rents, etc. from mining and factory establishments was estimated by the National Income Committee to be Rs. 620 crores in 1950-51. Comprehensive data on the amount paid as wages and salaries out of this are not available. Using the proportions in which the net value created by manufacturing industries is divided in the returns of the *Census of Manufacturing Industries*, one cannot be too far wrong in accepting the proposition that roughly half of this was distributed as wages and salaries and the rest was accounted for by gross income from property, that is interest, taxes, rents, corporation savings, dividends, etc.¹⁶ The amount of wages and salaries thus derived agrees broadly with the extrapolations of data on wages furnished by the Ministry of Labour.

It can therefore be concluded that of Rs. 620 crores of net income from mining and factory establishments, Rs. 310 crores were received as wages and salaries and an equal amount was represented by gross income from property.

(4) MISCELLANEOUS

(a) *House property.* The net income from house property amounted to Rs. 408 crores in 1950-51, of which roughly Rs. 200 crores was imputed to rural houses and Rs. 210 crores to urban houses. If the imputed income of the owner-occupied houses is excluded, it is safe to assume that about Rs. 150 crores, or roughly two-thirds of the total urban rental income, were paid as rent to house-owners by tenants in the urban areas.

(b) *Organised banking, insurance, forestry, fishing, etc.* The income originating in these sectors amounted to Rs. 180 crores. Using the same proportions¹⁷ that were used for distributing income from mining and manufacturing, the total amount from this group

¹⁶ See introductory note to the data from *Census of Manufacturing Industries in the Monthly Statistics of Production of Selected Industries of India*, (October, 1952 ; pp. 3-4) published by the Ministry of Commerce.

¹⁷ The proportion is undoubtedly different, particularly for fishing. The use of somewhat different proportions for this small total, however, would make relatively minor change in the order of magnitude of distribution. Some part of the income from fishing and forestry should in fact be considered as income of the self-employed.

TABLE 2

DISTRIBUTION OF THE NATIONAL INCOME OF INDIA : 1950-51

<i>Item</i>	<i>National income (in Rs. crores)</i>	<i>Persons employed in lakhs¹⁸</i>	<i>Per capita income (Rs)</i>
<i>I. Wages and salaries :</i>			
Agricultural labourers	790	390	200
Domestic servants	130	29	450
Employees of public authorities ¹⁹	650	54	1,205
Employees in "other commerce and transport"	210	29	725
Miners and factory employees	310	37	840
Miscellaneous	90	11	820
Total sub-group I	2,180	550	390
<i>II. Income of the self-employed :</i>			
All cultivators	2,600	620	420
Small enterprises	910	115	790
Small-scale commerce and transport	990	65	1,525
Professions and liberal arts	470	64	735
Total sub-group II	4,970	864	575
<i>III. Income from property :</i>			
Rent of land	770		
Interest on cultivators' debt	650 ^{19a}		
Rent from urban housing	150		
Gross profits, etc., in mining and manufacturing	310		
Gross profits in private commerce and transport	210		
Miscellaneous	90		
Total sub-group III	2,170		
Grand total (I to III)	9,320	1,432	650

¹⁸ All figures in this column, except for those of agricultural labourers and cultivators, are from Table 5 in the *Final Report of the National Income Committee*. The occupational distribution of the agricultural population is derived on the basis of the findings of the Agricultural Labour Enquiry; the figures supplied by the 1951 Census returns in this respect are of little use.

¹⁹ Includes payment of wages and salaries in government administration and in public enterprises such as railways, post and telegraph, etc. See Table 37 in the *Final Report of the National Income Committee*.

^{19a} Also see fns. 12 and 15.

may be divided as Rs. 90 crores for wages and salaries and an equal amount as income from property.

The distribution of the national income of India, based on the preceding adjustments, is shown in Table 2.

II

It will be of some interest to examine the main conclusions that emerge from the estimated distribution of India's national income.

(1) More than half of the national income is accounted for by the income of the self-employed.

(2) Wages and salaries represented nearly 23 per cent, or Rs. 2,180 crores of the total. As a result of the predominance of small-scale agriculture and household industries in the Indian economy, the share of income going to the wage and salary earners in India is considerably smaller than that prevalent in industrially developed countries such as the United Kingdom and the United States. In both these countries, the compensation of employees accounted for roughly two-thirds of the national income over the last decade.²⁰

(3) Gross income associated with property ownership in India amounted to Rs. 2,170 crores, or a little more than 23 per cent of the total. The sharp difference that was noted above in the proportions of compensations of employees in India and in the developed countries does not exist as far as the proportion of income from property is concerned. In broad terms, the income from property in the United Kingdom and the United States varied between 20 to 25 per cent of the total over the last decade.²¹ In India, its share in the total was 23 per cent in 1950-51, or roughly the same as in the two highly developed countries. It is not the main purpose of this paper to analyse in detail the significance of this fact; however, it may not be out of place here to draw attention to some of the implications that it suggests.

In the post-war period, economists have engaged in a considerable amount of discussion on the problems of economic deve-

²⁰ United Nations, *Statistics of National Income and Expenditure*, (New York, March 1955); Table 4.

²¹ *Ibid.*

lopment in countries in which, as a result of various historical reasons, the process of development has remained arrested. A very large measure of this discussion has been stimulated by the need to expedite the rate of development in these countries. In these discussions, attention is drawn to the obviously very low level of *per capita* incomes in these countries and it is deduced that, with such low incomes, the rate of savings is also bound to be low. Once this is accepted, the inevitable conclusion follows that the rate of investment and hence the rate of future increment in the national income would necessarily remain low.

If the shares of gross income from property in total income in India, an underdeveloped country, and in the highly developed countries such as the United Kingdom and the United States, are roughly equal, it would suggest an approach to the problem of savings on lines significantly different from those sketched in the preceding paragraph. Numerous studies on savings have brought out the fact that most of the savings take place in the upper income brackets, roughly corresponding with groups receiving property income. In order to deduce the possible rate of savings, reference should therefore be made, not to general averages of income, but to the segment in which savings in most part originate, or to the *effective income for savings*. If this is done, there is much to be said for the proposition that the rate of savings and hence of investment in India does not have to be much lower than that in some of the developed countries.²²

The knowledge about the real rate of savings in India cannot be considered adequate. What seems fairly clear, however, is that the rate of productive investment as related to the total income is low. For an approach to an explanation of this, it would be fruitful to examine the structure of property income in India. Of the Rs. 2,170 crores received as gross property income, over Rs. 1,400 crores, or a little less than two-thirds, is obtained as rent on land and interest on cultivators' borrowings. Only one-third of the income from property is derived from modern industrial and commercial enterprises. Generally speaking, only a small

²² Assuming that the shares of consumption in property incomes are not altogether different in both the cases. This argument, although restricted to India, may be valid for similarly-placed other underdeveloped countries. Further studies in this direction would be very fruitful.

portion of the savings from land rent and interest on money lending, or what may be broadly termed "feudal" incomes, is channelled into productive investments; a large part of these incomes is immobilized into hoarding and frittered away in feudal conspicuous consumption.

The essence of the preceding argument may be summarised thus : although *per capita* income in India is low, the *possible rate* of savings does not have to be significantly lower than in the developed countries, for the proportion of the saving-generating income, of gross property income, in both cases is approximately the same. The low rate of productive investment in India may, therefore, be explained, not by a reference to the low average income, but by the preponderance of "feudal" income (in property income), which in the main is sterile at present for furthering economic development. The obstacle to a higher rate of productive investment in India in 1950-51 should, thus, be ascribed not to a theoretically assumed low capacity to save, but to an existing inability to mobilize economically the rate of possible savings.

III

It will be of some interest to see how the distribution of the national income is affected by taxation. In order to be precise, it is necessary to have a detailed breakdown of the incidence of direct taxes on the major components of the national income. Without claiming a great degree of precision, a working approach to the problem is outlined below.

Direct taxes. Of the Rs. 231 crores of direct taxes, Rs. 52 crores was land revenue. About half of this was paid by the rent-receivers and the other half by the owner cultivators. As far as the taxes on income are concerned, one can safely consider the income of the self-employed and wages as not being subject to direct income tax. From a breakdown of the income tax returns for 1950-51, it appears that income tax amounting to about Rs. 7 crores was collected on salaries amounting to Rs. 105 crores. The rest of the tax could be assigned to the gross income from property (excluding "feudal" income).²³ The disposable income, including savings,

²³ Although money lending incomes are subject to income tax, it is most unlikely that, due to the absence of revelation of the exact volume of lending, or the rate of interest charged thereon, income tax is really paid on any significant portion of them.

derived after deducting direct taxes, is shown in column (c) in Table 3.²⁴

The share of property income is reduced from 23.3 per cent of the total to 21.7 per cent. This is in some measure an indication of the extent to which the tax policy contributed towards reducing the share of the property incomes in the total. It is significant, however, that the main burden of this slight reduction was borne, not by the incomes originating in rent on land and interest on cultivators' borrowings, but by gross profits, etc. of large-scale industrial and commercial enterprises. As a result, the share of "feudal" incomes in total income from property increases from 65 per cent to over 70 per cent.

It is this failure of taxation to touch the "feudal" incomes in particular, and not the agricultural incomes in general, that should then be an important consideration in reformulating taxation policies in the future. For those interested in broad magnitudes, it may

TABLE 3
DISTRIBUTION OF THE DISPOSABLE INCOME AFTER TAXATION . 1950-51
(Rs. crores)

<i>Item</i>	<i>Total income</i>	<i>Direct taxes</i>	<i>Disposable income (a-b) (c)</i>
	(a)	(b)	(c)
I. Wages and salaries	2,180	7	2,173
II. Income of the self-employed	4,970	26	4,944
III. Income from property, of which .	2,170	198	1,972
Rent from land	770	26	744
Interest on cultivators' debt	650	—	650
Gross profits, etc. ²⁵	750	172	578
Grand Total (I to III)	9,310	231	9,089

SOURCE : Table 2.

²⁴ Other transfer payments such as food subsidies on the one hand and interest payments on public debt on the other have to be taken into account to derive more precise estimates. These and similar refinements, however, are unlikely to alter the broad magnitudes indicated here.

²⁵ Total of gross profits in mining, manufacturing, private commerce and transport, rent from urban housing, and miscellaneous.

be suggested, for instance, that mobilizing even a third of these incomes into productive channels can provide the additional financial resources which will make it possible to raise the targets of public investment in the Second Five-Year Plan by more than a half. To do this is obviously more a task of political courage than of economic acumen.

GROWTH OF INCOME AND INVESTMENT IN INDIA AND CHINA, 1952-1960*

INDIA and China together account for nearly 60 per cent of the population of the pre-industrial, or as they are usually called, "under-developed" countries. A comparative study of their economic development has great relevance not only because of their large populations and potential, and the consequent influence their experience may be expected to have on economic, political and social thinking and policy in other parts of the world, but also because of the light it may throw on the study of problems of economic growth in pre-industrial countries among which they occupy a somewhat unique position aside from their largeness. Many of the countries not industrialized at present are small, sparsely populated, and/or young in history. Even some of the countries which are in a developed stage today were so in their pre-industrial position. In contrast, India and China are large countries with centuries of a long and crowded history behind them. In both of them, the present level of *per capita* product is considerably lower than that of many industrially developed countries even prior to their industrialization. Their experience, therefore, particularly in the period of their industrial take-off, can provide vital contemporary material on problems of economic growth.

Comparisons of economic levels and their growth in different countries, and over a period of time even in the same country, are beset with many difficulties.¹ In many cases, needed data are either simply not available or can only be had incompletely. For

*Reprinted from *Indian Economic Review*, February 1957.

¹ A large body of discussion has been built around these problems in post-war years. For a summary presentation see Kuznets, S. S., "Problems in Comparisons of Economic Trends", written as a foreword to Part I of *Economic Growth: Brazil, India and Japan*, (Duke University Press, 1955) pp. 4-28; Milton Gilbert and Irving B. Kravis, *An International Comparison of National Products and the Purchasing Power of Currencies*, (OECE Paris 1953); and papers by V. K. R. V. Rao, Richard Stone, Kurt Hansen, Tibor Barna, S. Herbert Frankel and others in *International Association for Research in Income and Wealth, Income and Wealth, Series III* (Cambridge, 1953), and by M. Gilbert, I. Kravis and E. F. Jackson in *Income and Wealth, Series IV*.

reasons of conceptual differences and different institutional set-up to which these data apply, it is difficult at times to ascertain whether comparables are being compared. The temptation to adopt a purely negative approach and not to attempt any comparative study at all is indeed great. However, the solution of these problems would not be brought any nearer by constantly bemoaning the absence of comparable data and shelving altogether further work on whatever is available. Only by making a start, however inadequate and fragmentary the material and however fragile at times the conceptual framework, can a body of knowledge be built up which would help perceive the gaps and indicate means of removing, or at least narrowing, them. This paper is an attempt in this direction to bring together some of the statistical material needed for a discussion of growth of income and investment in India and China.

The first section is devoted to estimating national income and investment in China and to discussing the problems of their comparability with those for India. The actual comparison for the period 1952 to 1956 and for plans up to 1960 forms the subject matter of the next section.

I

The information available on national income and its main components in China was up to now limited to index numbers. Recently, however, the proportional relationships between national income, investment (accumulation, as it is called in China), and budgeted state revenue since 1952 were given in a speech delivered by Po I-po, Chairman of the National Economic Commission, at the Eighth National Congress of the Communist Party of China. Since the budgetary data have been available in absolute terms, it is now possible to derive estimates of China's national income and investment in Yuans.²

Before the data on China's national income and its compo-

² Once the basic relationships from which absolute figures can be derived are published, one wonders what real purpose is served by withholding publication of the actual data and the details of their computation. It is to be hoped that these will soon be made available so that the annoying uncertainty about some of the calculations and their basis can be avoided and a more meaningful analysis of developments undertaken.

TABLE 1

ESTIMATES OF INCOME AND INVESTMENT IN CHINA

Item	1952	Index numbers for 1956	
		1956 ^a	1952=100
	<i>Billions of Yuans</i>		
National income	68.0	97.0	144
Investment	10.5	22.0	209
Consumption (residual)	57.5	75.0	130
	<i>In per cent of income</i>		
Accumulation	15.7	22.8	145

SOURCE: Po I-po, *Eighth National Congress of the Communist Party of China, Documents* (Peking 1956), II, pp. 45-62, and *Peoples' China*, No. 14, 1956, p.8

nents can be compared with Indian figures, two problems have to be resolved. One relates to differences in the statistical concepts on which these computations are based, and the other is the question of expressing the values in two currencies on a common comparable basis.

(1) CONCEPTUAL DIFFERENCES

National Income. Estimates of national income (at factor cost) in India follow statistical concepts which are current in what is commonly called the western world. The calculations in China, on the other hand, follow the practice in the Soviet Union. In his speech, quoted above, Po I-po defined Chinese national income as "the total value of output of industry, agriculture and the building industry, plus the value created by transport and commercial workers serving production (i.e. the total value of production), minus the depreciation charges of production. In other words, it is the net value of production".⁴

Although the theoretical basis for the evaluation is not the same in the West and in China, there is little difference between

^a Provisional.

⁴ *People's China*, November 1, 1956, p. 17.

the western and Chinese concepts as far as the inclusion of physical output in national income at market prices (that is, including indirect commodity taxes) is concerned. The conceptual dissimilarities centre on the extent of services covered. All the services that find an expression in monetary terms are included in the western concepts; all other services, for example the domestic services performed by members of a household or those rendered without requiring financial compensation, are excluded, although the imputed value of these may, in many cases, be very large.⁵ The Chinese definition, on the other hand, includes only a minimum of services directly connected with the 'production process', for instance, freight transport, trade—to the extent to which it adds to the value as a result of specific operations, such as storing, etc.—and catering services. It excludes the costs of other services, such as wages, salaries and allowances of government servants (including armed forces) and incomes of professionals (doctors, teachers, barbers, and others), domestic servants, and others providing more or less purely personal services.⁶

The Chinese concept thus includes all goods and only a few services. The western concept covers all the goods and services included in the Chinese concept plus some other services excluded under the Chinese definition. In fact, the Chinese concept of national income, or net value of production as it is called, thus boils down to being a smaller variant of the national income calculated on the basis of western notions. The national income accounts of most countries based on western concepts can, without much difficulty, be adjusted to correspond broadly to the Chinese model by the exclusion of the services which are not covered in the Chinese definition.

Apart from considerations of ideology or of conspicuous statistical and theoretical elegance, the Chinese practice may be more

⁵ Kuznets, S. S., estimated the imputed value of housewives' services in the United States in 1929 at 23 billion or more than a fourth of the national income. See his *National Income and its Components*, 1918-1938, National Bureau of Economic Research, Vol. II, p. 434; for Norway, see United Nations, *National Income Statistics of Various Countries* 1938-1947, Table I, p. 82.

⁶ See Jackson, E. F., "Social Accounting in Eastern Europe" in International Association for Research in Income and Wealth, *Income and Wealth*, Series IV, London, 1955.

readily adaptable to available statistical material in a number of underdeveloped countries. The observations which Professor S. S. Kuznets has made in this connection may be recalled : "The attempts, all too frequent in recent years, to fit the scanty data of many underdeveloped countries into strait jackets of elaborate social accounts proliferated in the developed countries, have proved useful in that they indicated how little we know—if that is the lesson which the compilers and users draw. But would it not be more fruitful, in the longer run, to admit that only some of the aspects of economic life in the underdeveloped countries, or in the earlier phases of the developed ones, are measurable, and to attempt to measure them in such a way as to secure a reasonable portrayal of basic levels and trends? To illustrate, if we find that in earlier phases in the United States and in many countries today, only income embodied in commodities can at all be approximated, let us measure this part as exclusively as we can and not manufacture out of whole straw estimates of income arising in services."⁷

The Indian figures on net national product at factor cost (national income) may be adjusted, in a somewhat rough and ready way, along the following lines so as to correspond to the Chinese data. The figures under the main headings "agriculture" and "mining, manufacturing and handicrafts" need no adjustments. Over the last five years these items accounted for roughly two-thirds of India's national income. To these should be added indirect taxes less subsidies (with the probable exception of land revenue and receipts from fees) in order to correspond to valuation at market prices. The data under the main heading "other services" (professions and liberal arts, Government administration, domestic service and house property), constituting around a seventh of the national income, need to be excluded.⁸

The item where considerable adjustments are called for is "commerce, transport and communications", which includes organized banking and insurance, post, telegraph and telephone, railway and other commerce and transport. It is difficult to separate from the total income originating in services which are not connec-

⁷ Kuznets, S. S., *Economic Growth : Brazil, India and Japan*, (Duke University Press, 1955), p. 10.

⁸ Some of these may be included in the national income on the basis of a more elastic interpretation of the term 'production process.'

ted with "the process of production" and thus would be excluded from Chinese calculations. An examination of the detailed figures suggests that the income under this should be reduced by about a fourth to a third to make an approximate allowance for the exclusion of passenger travel by rail, motor, river and air, of a large measure of income originating in communication and in organized banking, earnings of film industry, etc.

All these adjustments bring down the Indian figures for national income by somewhat less than a sixth—say 15 per cent; this proportion is used in Table 3 for adjusting Indian national income data to make them comparable to the Chinese ones.⁹ The adjustments are no doubt crude, and the results can only be used to give an impression of the order of magnitudes involved.

Accumulation (Investment). This was defined by Po I-po, the Chairman of the National Economic Commission, as follows:¹⁰ "The part of the national income which goes to accumulation consists of the following: In the form of centralized state expenditures: investments in capital construction of productive and non-productive undertakings minus depreciation charges for fixed assets; newly increased circulating funds; newly increased state material reserves; etc. In the case of state enterprises: accumulation within each enterprise. In the case of agricultural producers' co-operatives, handicraft producers' co-operatives and supply and marketing co-operatives: reserve funds of the co-operatives. And in the case of individuals: investments made by industrialists, merchants, individual peasants and handicraftsmen."

Accumulation, as defined in China, covers net fixed capital investments and additions to stocks. It is thus conceptually not altogether dissimilar from the definition of net investment (gross

⁹ Similar adjustments by official statisticians in Poland for pre-war national income data indicated this proportion to be 10 per cent. See Jackson, E. F., *op. cit.*, p. 250. Recently, a Russian economist concluded that the official estimates of United States national income in 1950 need to be lowered by 21 to 22 per cent in order to make them correspond to Soviet definitions. Kolgenov, M., "Methods of Recomputing the National Income of the United States", *Voprosy Ekonomiki*, No. II 1955, pp. 96-113; see also his article "National Income of the United States from 1929 to 1954" in *Voprosy Ekonomiki*, No. 12, 1956.

¹⁰ Po I-po in *Eighth National Congress of the Communist Party of China, Documents*, Vol. II, p. 51.

investment minus depreciation charges) followed in India.¹¹ Personal and public consumption is derived simply as a residual (national income less net investment) in both cases.

(2) PROBLEMS OF COMPARABLE PRICES

Even when the adjustments for conceptual differences are made, there is the difficulty of expressing the monetary value of different countries in a common unit. The current exchange rate is at best a very poor reflector of the very important differences in the international price relationships, and pattern of and preferences in consumption, in different countries, particularly so if the countries compared are at markedly different stages of development.¹² These considerations are important even in comparisons between countries where the exchange ratios are relatively "free." The difficulties become unmanageable when attempting to relate income or price data for eastern European countries and the Soviet Union to those for other countries at the official rates of exchange.

The prices of major items of consumption, and current wage levels in India and China, are shown below in Table 2 in order to indicate whether the official exchange rate can be used for the purpose of comparing income data in the two countries. It should be

¹¹ It is probable, however, that the coverage of changes in stocks may be more comprehensive in China.

¹² The importance of these different stages of development, and the inability of statistical techniques developed so far to reflect them adequately, were brought out sharply when, quoting Colin Clark's figure of 40 international units, Professor Kuznets asked: "Could people live in the United States during 1925-34 for several years on an income substantially below \$40 per capita? The answer would be 'yes' if they were sufficiently wealthy to have lots of possessions to sell, sufficiently lucky to have rich relations or sufficiently bold to rob other people. The one-third to one-half of the pre-industrial population of the world would scarcely be in that position; and if we assume that all they have produced and could consume *per capita* was less than 40 international units for several years, the conclusion would be all would be dead by now. One is thus forced to infer that (a) either that the estimates, even after the customary adjustments for comparability with industrial countries, are still deficient in omitting many goods produced in pre-industrial countries, or (b) in fact the whole complex of goods produced and consumed is so different that we cannot establish any equivalence of the type represented by Mr. Clark's international units." Kuznets, S. S., "National Income and Industrial Structure", *Econometrica*, Vol. 17, Supplement July 1949, p. 209.

pointed out that the figures relate to retail prices in China and to wholesale prices (with the exception of those for eggs, pork and coal) in India; the comparable retail prices in India would be somewhat higher.¹³

TABLE 2
PRICES OF SELECTED COMMODITIES AND AVERAGE WAGE, IN INDIA AND CHINA, 1956

Item	China		India
	Retail Yuan	Prices Rs. ¹⁴	Wholesale Prices Rs. ¹⁵
<i>Food items</i>			
Rice (per lb.)	0.13	0.26	0.23
Flour : wheat (per lb.)	0.16	0.32	0.28 ¹⁶
Sugar	0.66	1.32	0.39
Pork	0.69	1.38	1.12
Eggs (dozen)	0.58	1.15	1.87
<i>Other consumer goods</i>			
Fine cotton cloth (per yd.)	0.78	1.56	1.39 ¹⁷
Shoes (per pair)	14.20	28.40	
Fountain pen (per unit)	4.60	9.20	
Bicycle	160.00	320.00	
Radio	120.00	240.00	
Sewing machine	140.00	280.00	
<i>Others</i>			
Coal : household (per 100 kg.)	2.70	5.40	16.00 ¹⁸
Average remuneration per annum ¹⁹	550	1100	1050

SOURCES : *People's China*, No. 20, 1956, p. 14, and *China Reconstructs*, December 1956, pp. 2-4 ; Ministry of Agriculture (India), *Bulletin of Agricultural Prices*, 1 December 1956 ; I. L.O., *Yearbook of Labour Statistics* 1956, p. 358 ; Department of Commercial Intelligence and Statistics, *Indian Trade Journal*, December 8, 1956, p. 829.

¹³ The National Income Committee allowed a margin of between 15 and 20 per cent for this. See *Final Report of the National Income Committee*, New Delhi, 1954, p.87.

¹⁴ 1 Yuan = 2 Rs.

¹⁵ In Bombay : retail prices for pork, eggs and coal. ¹⁶ Wheat.

¹⁷ Ex-factory price of long-cloth, Kohinoor, November 15, 1956.

¹⁸ Retail price for charcoal in October 1955.

¹⁹ The wages and salaries received by 13.1 million employees in India were estimated to be Rs. 12.6 billion in 1950-51, or an average of Rs. 960 per year. See Patel, S. J., "Distribution of the National Income of India, 1950-51" in *Indian Economic Review*, February 1956, p. 8. Since then, real average wage may be assumed to have

The food items and manufactured consumption goods for which prices are shown in Table 2 account for nearly two-thirds of consumer expenditure per household in India.²⁰ The pattern of consumption in China is unlikely to be altogether dissimilar. When converted at the official exchange rate into rupees,²¹ the prices for most of the food items in China are about the same as in India; only the price of sugar is considerably higher. In contrast to the situation in Eastern Europe, the retail prices of manufactured consumer goods in China are also in general comparable with those in India (as can be judged from one's personal buying experience) and in fact, in other western countries, although there may be important differences in the quality of the products.

Information is not available to determine comparability of price levels for investment. The general experience in India is that from a third to a half of the total investment expenditure is accounted for by direct payment of wages and salaries (in the first instance) for construction, etc.²² Since the average wage level in China is not much higher than in India (Table 2), it is fair to presume that at least for an important share of investment expenditure, there is a degree of comparability.

Very little is known about the influence of differential turnover taxes (including profit margins) on consumer goods and invest-

risen by no more than 10 per cent. For China, the average wage has been estimated from the data given in *China Reconstructs*. (December 1956, pp. 2-4) where it was stated that the rise in the average wage and salary for 18 million employees amounted to 80 Yuans or 14.5 per cent; the average remuneration, after the reform in late 1956, would come to 603 Yuans or Rs. 1,260.

²⁰ Ministry of Finance, Government of India, *National Sample Survey*, No. 2, Second Round, December 1953.

²¹ The official exchange rate for 1 U.S. dollar is 2367 Yuan for selling and 2343 Yuan for buying, ECAFE, *Economic Survey of Asia and the Far East*, 1955, p. 82, that is, one Yuan equals about 42 U.S. cents or Rs. 2.

²² Ministry of Finance, *Final Report of the National Income Committee* (New Delhi, 1954), p. 100. In their first Report, the National Income Committee assumed the proportion of wage and salary payments in capital accounts to be 50 per cent for "railways, post and telegraph, road transport, electricity schemes, and iron and steel and industrial works", 60 per cent for "forest, irrigation, industrial development and multi-purpose river valley schemes", and as 75 per cent for non-commercial "capital account of government administration." *First Report of the National Income Committee* (April 1951), pp. 46-7.

ment goods in China or, as a matter of fact, about the differences in profit margins for the two types of goods in India. If, however, the turnover taxes on consumption goods in China form a relatively much higher share of their market prices than is the case with investment goods, the data on investment in China in money terms would tend to understate the real volume of investment.

From the discussion above, it seems that the danger of the official exchange rates vitiating any kind of comparison between figures in Chinese yuans and Indian rupees is, relatively speaking, no greater (and probably less) than that in relating into a common unit national income data in many other countries—say India, Italy, France, the United Kingdom and the United States—which have much greater divergencies in price levels as well as in consumption and production patterns.

II

The estimates of net national income investment and consumption (shown as a residual) in India and China are brought together in Table 3. They refer to provisional data on actual developments between 1952 and 1956, and to the plans up to 1960. The estimates for India are given in two variants : one based on the definitions officially used and the other adjusted, as indicated in the preceding pages, to correspond to Chinese concepts. In view of the adjustments that have been made and the complex problems involved in inter-country comparisons of income data, it should be emphasized here again that these estimates should only be interpreted to indicate the broad orders of magnitude.

It may be useful here to indicate the reasons governing the choice of these years. The First Five-Year Plan in India covered the years 1951-52 to 1955-56, while the First Five-Year Plan in China covered the years 1953 to 1957. The Second Five-Year Plans would end in 1960-61 in India and in 1952 in China. Since there is a gap, chronologically speaking, of about two years in the plan periods for the two countries, it is not possible to cover simultaneously the ten-year period of planning in each country. The comparison here therefore covers eight years, skipping the first two years of India's First Five-Year Plan and the last two years of China's Second Five-Year Plan.

TABLE 3

ESTIMATES OF INCOME AND INVESTMENTS IN INDIA AND CHINA, 1952-1960
(In 1952-53 prices for India and 1956 prices for China)

Item	1952	1956 ²²	1960 ²³ Plan	Index numbers 1952=100		Annual average rates of growth in per- centages	
				1956	1960 Plan	1952- 1956	1956- 1960
INDIA²⁴							
<i>Billions of Rupees</i>							
A. Official definitions							
National income	98.2	112.0	135.0	114	137	3.5	5.1
Investment	5.6	9.0	15.0	161	268	15.2	16.7
Consumption: residual	92.6	103.0	120.0	111	130	2.8	4.1
	<i>% of national income</i>						
Investment	5.7	8.0	11.1	140	195	10.1	9.7
	<i>Rupee per capita</i>						
Income	267	290	333	109	125	2.2	3.7
Investment	15	23	37	153	247	13.3	15.2
Consumption	252	267	296	106	117	1.5	2.7
B. Adjusted to Chinese definition	<i>Billions of Rupees</i>						
National income	83.5	95.2	114.7	114	137	3.5	5.1
Investment	5.6	9.0	15.0	161	268	15.2	16.7
Consumption	77.9	86.2	99.7	111	128	2.7	3.9
	<i>% of national income</i>						
Investment	6.7	9.5	13.1	142	196	10.5	9.5
	<i>Rupees per capita</i>						
Income	227	246	283	108	125	2.1	3.8
Investment	15	23	37	153	247	13.3	15.2
Consumption	212	223	246	105	116	1.3	2.6
CHINA							
<i>Billions of Rupees</i>							
National income	136.0	194.0	262.0	144	193	11.0	8.5
Investment	21.0	44.0	56.0	209	267	27.2	7.0
Consumption	115.0	150.0	206.0	130	179	7.6	9.3
	<i>% of national income</i>						
Investment	15.7	22.8	21.5	144	137	11.3	—
	<i>Rupees per capita</i>						
Income	235	319	408	135	173	8.8	7.0
Investment	37	73	88	197	238	24.3	5.1
Consumption	196	246	320	124	161	5.9	7.5

(For sources and references see foot-notes on the facing page).

Four years is too short a period to form any definite notions about trends in economic growth, particularly when the discussion is about countries like India and China where the preponderance of agriculture makes their economies subject to the vagaries of natural factors. The national income estimates for both the countries have to be interpreted with a great deal of caution. Therefore, only a few general observations—quite tentative in nature—may be made on the basis of the data presented in Table 3.

(1) In 1952 the level of *per capita* income in India, based on official definitions, was about one-eighth higher than in China. If the Indian definition is adjusted to correspond to Chinese concepts along the lines indicated earlier, the difference is narrowed sufficiently to place *per capita* incomes in both countries at about the same level (amounting roughly to 230 rupees per year). *Per capita* consumption in China in 1952 was, however, lower than in India as a result of a larger share of investment in income.

(2) The changes since 1952 indicate that the rate of growth in income has been twice as high in China as in India. The national income of China increased at an annual average rate of about 10 per cent between 1952 and 1956; and the rate of growth envisaged for 1960 is only slightly lower. In comparison, the rate of growth in India was 3.5 per cent per annum between 1952 and 1956, and the planned rate for the period 1956-1960 is 5 per cent. As a result, *per capita* income has also risen faster in China. Starting from about the same level as in India in 1952, it rose by 1956 to a level about 30 per cent higher than in India and, according to the provisions of the Chinese Second Five-Year Plan, it would be 40 per cent higher than in India by 1960. Changes in *per capita* consumption followed in the same general direction,

SOURCES : India—Planning Commission, *The First Five-Year Plan and Second Five-Year Plan : A Draft Outline*. China—"Proposals for the Second Five-Year Plan", and Chou En-Lai's report on them in the *Eighth National Congress of the Communist Party of China : Documents*, (Peking, 1956), Vol. 1, pp. 229-328, and Po I-po's speech in Vol. II, pp. 45-62.

²² 1956 : Provisional estimates ; 1960 : plan data to be treated as rough approximations.

²³ Time reference is fiscal year beginning in April of the year stated.

showing somewhat smaller increases.²⁵

(3) Although both the countries had about the same income levels in 1952, the part of the income going to investment was considerably higher in China than in India. While *per capita* investment in India was only 15 rupees in 1952 it was as high as 38 rupees in China. This gap seems to have widened between 1952 and 1956, although it is expected to narrow thereafter as a result of the planned slow-down in the rate of increase in investment in China.²⁶

(4) Although the levels of investment were so different in both countries, it is interesting to observe that the incremental capital/output ratio—the ratio between additions to the total capital stock and the additional income—was about the same in both countries. As shown below, it would seem that this ratio was about 2.6:1 for the period 1952 to 1956; in other words, each unit of additional investment seems to have raised income by about 40 per cent of the amount invested. Owing to the crudeness of the data and the short period covered, this ratio of 2.6 should be treated only as an approximation. Yet the fact that it was about the same in both the countries would indicate that the differences in the rates of growth in income could not be ascribed to this factor.

This ratio seems to be somewhat lower in comparison with other western countries, although not much different from that for many of the east European countries and the Soviet Union.²⁷ The ability to raise agricultural output and even industrial output (owing to the existence of unutilized capacity) with small capital inputs during the initial period was no doubt a factor in keeping the capital/output ratio low in both countries. The increase expected in this ratio in China for the subsequent period is probably an indication of the fact that the opportunities for expanding output with smaller inputs of capital have narrowed.

²⁵ The description of changes in the actual output of various industrial and agricultural commodities can be found in ECAFE, *Economic Survey of Asia and the Far East, 1955*.

²⁶ It is probable that Chinese investment data may be overstated to some extent as a result of a somewhat more comprehensive coverage of total investments (particularly non-monetized investments) and of changes in stocks in investments.

²⁷ U.N. Economic Commission for Europe, *Economic Survey of Europe 1955*, pp. 200-201.

TABLE 4
CHANGES IN INCOME AND INVESTMENT : 1952-56, 1956-60

Item	India		China	
	1952-1956	1956-1960	1952-1956	1956-1960
a. Income (billion Rupees)	11.7	19.5	58.0	68.0
b. Investment (billion Rupees)	3.4	6.0	23.0	12.0
c. Addition to total capital stock during the period (billion Rupees)	30.9	51.0	143.5	208.0
d. Incremental capital/income Ratio : c/a	2.6	2.6	2.5	3.1
e. Incremental investment/income ratio : b/a	0.29	0.31	0.40	0.18

(5) Around two-fifths of the additional income was ploughed back into new investments in China between 1952 and 1956. This proportion made it possible to raise rapidly the rate of investment from 15.8 per cent of the national income in 1952²⁸ to nearly 23 per cent in 1956, a level around which it is expected to be maintained during the subsequent period. The stabilization of the rate of investment at somewhat over 20 per cent of the national income is reflected in a marked decline in the incremental investment/income ratio for the period after 1956.

In India, on the other hand, the proportion of the new income diverted to investment was lower—about 30 per cent—between 1952 and 1956, and it is planned to remain at about this level during the subsequent period. As a result, investment rose from about 7 per cent of the national income in 1952 to around 10 per cent in 1956 and will increase to 13 per cent by 1960.

²⁸ This rather high rate of investment even at the start of the First Five-Year Plan would indicate that the proportion of additional income ploughed back in investment in the few years before 1952 must also have been substantially high.

It is not within the scope of this short statistical study to attempt an explanation of the changes described above. The general thought that emerges from it is, however, fairly clear. In both the countries, income, investment and consumption have all risen. The experience of both the countries, and perhaps more strikingly that of China, illustrates that the levels of investment can be raised sharply within a relatively short period without necessarily having an adverse impact on consumption. The large rise in income generated by the rapidly expanding levels of investments appears to have been sufficient to assure a rise not only in investment but also in consumption. It underlines the importance of the dynamic functional relationship between income and investment — a relationship in which investment appears not as a mere arithmetical deduction from income and consumption but at the same time as a generator of income.

PLANNING IN INDIA AND CHINA : ITS RELEVANCE TO THEORY OF ECONOMIC GROWTH*

THE vast literature on economic growth which has proliferated in recent years has tended to emphasize the difficulties of economic growth and planning. This pre-occupation and its reflection in a feeble and theoretically insecure planning effort are perhaps the consequences of an embarrassing intellectual inheritance of the past era. For a century since J. S. Mill, the problems of abstract price formation and static equilibrium occupied the centre of the stage in economic discussions. The fear of stagnation in the industrially developed capitalist countries in the 'thirties', and, more recently, the articulate wishes of the pre-industrial countries to foster economic growth more rapidly, brought about a major change. Attention slowly shifted back to what was originally the central thought in *political economy*—the problem of economic growth and the elaboration of a social plan to attain such growth.

There is no need to enumerate here the various—major and minor—impediments that have been elaborated in detail in writings on the subject. An attempt will be made here to examine the concept of the "vicious circle" of poverty—or the general inability of the poor countries to grow. This concept has dominated most of the popular as well as some of the sophisticated writing on this subject.

THE "VICIOUS CIRCLE" OF POVERTY

Apart from natural calamities, economic stagnation or decline takes place when the level of investment is not adequate to raise productive capacity and output beyond the pace of population growth. Conversely, economic growth results when the rate of growth is raised beyond this through a greater investment effort. Once the level of investment has risen to a sufficiently high level,

* Reprinted from *Economic Weekly*, (Annual), November, 1959. See fn. to the next essay.

growth can then become self-sustaining. The crucial period, therefore, is the years during which an economy grows from a low investment-economy to a high investment-economy.

The implications of this transition are usually explained along these lines : the pre-industrial countries have low per capita incomes, the share of consumption in incomes is very high ; therefore savings are inevitably low. With such a low level of savings, investment (equated with savings) also remains low ; and, it would be idle to expect rapid growth from such a low level of investment. The circle is thus nearly complete—start with low income, conclude with the difficulty of raising it. This situation is referred to as the “vicious circle” of poverty and of course growth requires breaking the circle at some point.

EXPERIENCE OF INDIA AND CHINA

Breaking this circle, however, is considered difficult since people cannot be expected to save (and therefore invest) much, when their initial income is so low. Thus, the problems of economic growth are enclosed in a neat little logical box. The schematic presentation also appeals to the puritan worship of savings (and the allied notion of savings as some kind of abstinence from consumption). In this way, the potential of economic growth is indissolubly linked with the current capacity to save. It is suggested that savings cannot be increased without lowering consumption. These doctrines need to be examined in the light of the actual experience of India and China.

The economic developments in India and China have been analysed by Wilfred Malenbaum in a recent study, “India and China: Contrasts in Development” in the *American Economic Review*, June 1959. The growth of the major aggregates—such as the gross national product (GNP), gross investment and consumption—in both the countries for the period 1950 to 1958, taken from Malenbaum’s study, is summarized in Table 1. A number of reservations can be made concerning Malenbaum’s methodology, but they are not such as to affect significantly the trend shown by his estimates. Like all data on comparative national accounts, the aggregative figures should be treated not as precise estimates but only as broad indicators of magnitudes.

TABLE 1

GROWTH OF GROSS NATIONAL PRODUCT, INVESTMENT AND CONSUMPTION IN INDIA AND CHINA : 1950 TO 1958

Year	Gross National Product	Gross Investment	Consumption ¹	Gross National Product	Gross Investment	Consumption ¹	Gross Investment as percentage of GNP
	Billions of Rupees at 1925 prices			Index numbers 1952=100			
India							
1950	101.0	9.4	91.6	93	89	94	9.3
1951	103.7	9.9	93.8	96	93	96	9.5
1952	108.1	10.6	97.5	100	100	100	9.8
1953	114.4	11.1	103.3	106	105	106	9.7
1954	117.8	13.4	104.4	109	126	107	11.4
1955	120.1	14.5	105.6	111	137	108	12.1
1956	126.1	16.7	109.4	117	158	112	13.2
1957	126.8	17.2	109.6	117	162	112	13.6
1958	130.0	17.5	112.5	120	165	115	13.5
China ²							
1950	110.0	10.6	99.4	81	53	86	9.7
1951	125.7	14.8	110.9	93	73	96	11.8
1952	135.7	20.2	115.5	100	100	100	14.9
1953	154.1	25.9	128.2	114	128	111	16.8
1954	163.8	31.3	132.5	121	155	115	19.1
1955	170.8	30.8	140.0	126	152	121	18.0
1956	194.4	37.2	157.2	143	185	136	19.2
1957	204.8	48.9	155.9	151	243	135	23.9
1958 ³	235.0 ³	51.7	183.3	173 ³	256	159	22.0

SOURCE: Malenbaum, Wilfred, 'India and China: Contrasts in Development', in the *American Economic Review*, June 1959, p. 287 for detailed footnotes concerning estimates.

¹ Derived as a residual and thus including both public and personal consumption.

² Yuan converted to rupees at the rate of 1 y=2 Rs. for basis of conversion: see Patel, Surendra J., 'Growth in Income and Investment in India and China 1952-60' in the *Indian Economic Review*, February 1957, pp. 59-62.

³ Malenbaum estimates the growth in GNP in China between 1957 and 1958 to be about 15 per cent; the official figure, recently revised downwards, is at least twice as high.

CHINA STARTED FROM LOWER LEVEL

Even though the data are rough and subject to a number of qualifications—particularly owing to the differences in conceptual framework, methods of computation and to some extent price comparability—they are reliable enough to permit a few observations concerning the direction of change during this period.

(1) In the initial year, that is 1950, total gross national product and gross investment in China were about one-tenth higher than in India. Since the population in China was larger by about a half, the level of per capita gross national product was about one-third lower than in India. China was even poorer than India.

(2) In 1950, gross investment as a share of gross national product was between 9 to 10 per cent in both and the current rate of saving was about the same.

(3) Eight years later, by 1958, the gross national product rose by 30 per cent in India and by over 100 per cent in China. The annual rate of increase in India was a little over 3 per cent; in China it was over 10 per cent (or at least 3 times as high). The rates of growth were strikingly dissimilar in the two countries although in the initial period they had about the same volume of gross national product and of gross investment (or about the same current rate of saving).

(4) At the purely quantitative level of economic analysis, these differences seem to stem in part from the different rates of growth of investment in the two countries and in part from a more efficient use of capital in China—that is, obtaining a lower capital/output ratio. In 1950, the volume of investment in China was only slightly higher than in India, but the rate accelerated much more in China. As a result, by 1958, the absolute volume of annual capital formation in China was some three times higher than in India. During these eight years, total investments in China were about two and a half times higher than in India.

(5) Both countries began with about the same level and rate of investment, but China raised investments much faster than India. Consequently, it had a faster rate of growth of the gross national product and greater increase in the ability to invest.

CHINA USED CAPITAL MORE EFFICIENTLY

It is interesting to note that there was only a small difference between the two in the marginal savings/income ratio, or the proportion of additional income ploughed back as investment. This ratio was 0.27 for India and 0.33 for China—that is, approximately 30 per cent of the additional income was used for investment. Thus, even with *similar marginal savings/income ratios*, the growth in China was much more rapid. This was also due to the fact that a more efficient use of investments was made in China. The marginal capital/output ratio, or the amount of additional investment required for a unit of additional output, was 3 to 3.5 in India; while in China this ratio was about 2. This difference was in part due to concentration of investments in the transport and communications sector in India—a sector relatively more developed in India than in China, and yet, for reasons which will no doubt have to be sought in the non-economic fields, India poured in nearly one-third of the public investments in it. It was also due to obtaining larger increments in agricultural output with relatively low investments in agriculture.

The low capital/output ratio need not be interpreted as solely arising from the utilization of a very low level of technology: for instance, from the attempt—now almost abandoned—to obtain additional output of modern steel through small blast furnaces in China. The ability to attain a low capital/output ratio and thereby a much more efficient use of the scarce factor of investment is connected with the whole field of social planning; more specifically, with the ability of the planning agencies to utilize to the maximum the potential productive resources which are essential for an economy to grow. These efforts also include the use of unemployed and under-employed labour organized on a vast scale to create socially necessary capital works (local irrigation works, control of soil erosion, afforestation, roads, schools, etc); more intensive exploitation of existing modern facilities (which are seriously under-utilized in India, despite the talk about shortage of capital—factories that work only one shift and that too inefficiently, idle capacity in the transport system, under-utilization of railway tracks and rolling stock; acres and acres of land which produces barely a little more than the seed thrown into it; the absence

of the practical application of the simple but highly productive modern agricultural techniques ; inefficient use of the employed labour due to the lack of the purposive application of simple organizational and technical innovations ; and these are but a few examples.) Yet these changes make limited demand on what is understood as capital investment, but if introduced on a large scale, can yield very significant increases in total output.

NOT AT COST OF CONSUMPTION

(6) The rapid increase of investment in China was not associated with any decline in aggregate consumption. In fact, the larger expansion in gross national product made possible by a larger volume of investment and more efficient allocation of it resulted in bringing about a much greater rise in consumption. During 1950-1958, the rise in consumption amounted to about one-fourth in India, while it was over 80 per cent in China. In 1950 per capita consumption in China was approximately a third lower than in India. By 1958, it rose somewhat above that in India.

Even when all the formidable difficulties of interpretation of statistical data are taken into consideration, the examination of the development of two countries does throw grave doubts on the current concept of the "vicious circle" of poverty—which emphasizes the inability of the pre-industrial countries to raise investments and start a self-generating, self-propelling growth.

There is thus need for a basic re-examination of the current concepts on the theoretical relationship between investment (saving) and growth in income and consumption in both a static and a dynamic situation.⁴ In a static sense, it is correct to say that investment is an arithmetical deduction from income. Therefore if more investment is undertaken, less of the income is left for consumption : this idea is usually expressed in the oft-repeated phrase, "you cannot have your cake and eat it." In sciences—natural and social—the laws of statics do not always have much relevance to dynamics, where a different functional relationship among the various variables is expected to prevail. This is now accepted in all the natural sciences where experimentation in dy-

⁴ See Patel, Surendra J., "Savings, Investment and Economic Growth : A Dynamic Approach", *Indian Economic Review*, August 1959.

namics and its results have left little choice. But in the social sciences, its acceptance has remained slow.

NOT LIMITED BY LOW SAVING

In fact the relationship is not so simple as the current concepts assume. When one considers the question of economic growth in a dynamic situation, investment is not merely an arithmetical deduction from income but also simultaneously the generator of income; the marginal increments in income are directly related to as well as dependent upon the increments in investment. In a static case, investment has no impact on the level of income and it only tends to alter the level of consumption; but in a dynamic situation, investment has a definite and direct influence on the level of income. It is the major variable which can raise income. Higher investment would necessarily mean lower consumption in a static sense. But due to the dynamic functional relation between investment and income, one could derive almost a "perverse" (from a static point of view) result in a growing economy—the larger the investment effort, the larger the rise in future consumption. The correlations, therefore, between investment and consumption are entirely different in the two situations; an inverse correlation in a static and a direct correlation in a dynamic situation.

Economic growth need not be conditioned in an absolute sense by the low current rate of saving, but can be financed, subject to an appropriate policy framework, as a draft on the future. The central aim of economic theory and policy would then be not to continue the sterile lamentations on the "vicious circle" of poverty and the low level of savings but to elucidate and implement the steps that make possible a drawing on the future growth.

DRAWING ON THE FUTURE, NOT DEFICIT FINANCING

The argument therefore may be stated thus: that a country which undertakes a larger investment effort can attain a larger increment both in total output and consumption. There is nothing

obscure and incomprehensible in the idea of drawing on the future growth. Modern methods of finance, evolved during the last two centuries, indicate that a large part of the grant of a line of credit—for a month, three months, a year or longer—to an individual or an enterprise is essentially a draft on the future growth of income which is expected to be realised through the efforts of an individual or an enterprise. If the individual or the enterprise succeeds, the line of credit is repaid in the stipulated period and the financing is considered a successful venture; otherwise not. It is ultimately the confidence in the future that makes such an extension of credit possible. As with individuals, so also with economies. Future growth, therefore, need not be conditioned by the level of current savings but could be financed as a draft on the future.

A distinction must be made between drawing on the future and deficit financing. When the latter is resorted to without a plan to plough back the future growth in output, it usually leads to more of it, and to serious inflationary pressures. It is here that the nature and the quality of social planning—the organization of social drives and motivation, the control of the flows of output and income, the ability to cut down sharply conspicuous consumption, the most efficient and economic use of the resources—has a far greater importance than the capacity of the economic planning agency to produce attractive statistical formulae.

INVESTMENT-CONSUMPTION CORRELATED

The line of reasoning in this paper would suggest two conclusions which have great relevance for planning in the pre-industrial countries :

(1) That over a period of time, raising investment in order to attain higher rates of growth does not require a decline in aggregate consumption ; in fact, the rise in investment and consumption is directly correlated. Only those economies which raise the volume of investments faster can expect an increase in consumption.

This possibility could have important social consequences. In a large measure, the haunting fear of the need for a decline

in consumption has so far been an important element in discouraging a bolder investment programme. It has been said that only authoritarian measures can succeed in restraining consumption. Once it is admitted that there is a direct correlation between the growth of consumption and investment, part of the hesitation in planning may be easier to overcome.

(2) That over a period of time there is no absolute connection between the current rate of saving and the potential rate of growth. Subject to adequate policies, economic growth could be financed as a draft on future expansion of resources. In this respect, economic growth may approximate the movement of a self-propelling body. The initial motion would begin not so much due to the push given by the present rate of savings but due to the ability to discount the future. Once begun, it can be self-perpetuating.

GROWTH IS ATTAINABLE

This analysis does not indicate that planning for economic growth is simple, that there is little to be done except to take an overdose of optimism. But merely to emphasize the economic difficulties and the scarcity of resources is to look into an empty medical chest. Most of what has been said above is simple and obvious, except perhaps to those who have the "dogmatism of the untravelled". In the quest for the complex, the simple and obvious has too often been overlooked.

If the limiting role wrongly assigned to it is wrested from the current rate of saving and the paralysing fear of the need to reduce consumption is overcome, it would then seem that most countries have the possibility of attaining and maintaining high rates of growth—amounting to some 8 to 10 per cent per year. A rate of growth of this order would raise the present level of output by 50 to 120 times in half a century. When this is realised, it is a matter of simple arithmetic (and the knowledge of the great force with which high rates cumulate when compounded over a period of time) to indicate that closing the gap—even at its widest—between the richest and the poorest country is not an impossible task. It does not require hopeless and endless centuries but less than half a century—no more than the adult life of a person. The central task of the theory of planning would then be to demonstrate how best to achieve the

attainable—the abolition by the end of this century of the economic problem which has engaged throughout the ages more than 90 per cent of the people for most of their active lives.

SAVINGS, INVESTMENT AND ECONOMIC GROWTH : A DYNAMIC APPROACH*

ECONOMIC growth was the central problem that fascinated the classical economists. Even the full title of Adam Smith's *magnum opus*, *An Enquiry into the Nature and Causes of the Wealth of Nations* (1776), is highly suggestive. But during the century that separated John Stuart Mill from recent years, economic growth seems to have come to be assumed ; otherwise it is less easy to explain the attention given by most of the economists, particularly in the English-speaking countries, to the problems of abstract price formation and static equilibrium. With the fear of stagnation in the 'thirties, and in more recent years the increasingly articulate wishes of the pre-industrial countries to foster economic growth more rapidly than before, attention is slowly shifting back to what was originally the central thought in political economy—the problem of economic growth. It need not be surprising therefore to find that the intellectual inheritance from an era where the problems of static balance were in the centre has often been an embarrassing frame of reference through which problems of economic growth can be approached. The intellectual discomfort often resembles the frustrating efforts to look at the galaxies through a highly sensitive microscope rather than a telescope—even a poor one. This article is an attempt to change the instruments. The thoughts thus derived are not fully worked out and they obviously leave unanswered many questions relating particularly to the initial period of growth ; but they do suggest the need for shifting the focus of enquiry on economic growth.

Apart from natural calamities, economic stagnation or decline is associated with a level of investment which is not adequate to raise productive capacity and output beyond the pace of population growth ; conversely speaking, economic growth results when the rate of growth is raised beyond this through a greater investment effort. Once the level of investment has expanded to a sufficiently high level, growth could become self-sustaining. The crucial period,

*Reprinted from *The Indian Economic Review*, Vol. IV, No. 4, August 1959. This and the preceding essay are closely inter-related. The same thought is often repeated in not altogether dissimilar language—S.J.P.

therefore, is the years during which the economy grows from a low investment economy into a high investment economy. The implications of this transition for the industrially less developed economies are usually explained along these lines : they have rather low per capita incomes, share of consumption in incomes is very high and therefore that of savings is inevitably low. With such a low level of savings, investment (equated with savings) also remains low and it would be idle to expect rapid growth from such a low level of investment. The circle is thus nearly complete—start with low income and conclude with the difficulty of raising it. This situation is usually referred to as the “vicious circle” and growth requires breaking the circle at some point.

Breaking this circle, however, is considered difficult since people cannot be expected to save (and therefore invest) much when the initial income is so low. Thus, the difficulties of economic growth are enclosed in a neat little logical box. The schematic presentation also appeals to the puritan worship of savings (and the allied notion of savings as some kind of abstinence from consumption). In this way, the potential for economic growth is indissolubly tied to the current capacity to save and it is suggested that this cannot be raised without lowering consumption.

Current savings, equated to investment potential, are considered as an arithmetical deduction from income. This reasoning is not fallacious if applied to a static situation where with a given income investment (savings) cannot be raised without lowering consumption. But in all sciences—physical as well as social—the laws of statics have not always found much meaningful relevance to dynamics, where a different functional relationship among the various variables may be expected to prevail. This is now fully accepted in all the natural sciences—where the experimentation in dynamics and its results left little choice—but its acceptance in the social sciences has remained rather slow.

The relationship between investment and consumption in a static and dynamic situation may be examined in somewhat greater detail. In a static sense, it is of course right to say that investment is a *deduction from income and therefore if more investment is undertaken less of the income is left for consumption* ; in popular parlance, “you cannot have your cake and eat it.” In terms of growth, however, it would seem that the relationship is not so simple.

In a dynamic situation, investment is not merely an arithmetical deduction from income but at the same time is also the generator of income; the marginal increments in income are therefore directly related to and dependent upon the increments in investment. Thus, in a static case, investment has no impact on the level of income and only tends to alter the level of consumption; in a dynamic situation, on the other hand, investment has a very direct influence on the level of income, for it is the major variable which can raise income. Consequently, in a static sense higher investment would necessarily mean lower consumption. But owing to the dynamic functional relation between investment and income, one could derive almost a "perverse" (from a static point of view) result in a growing economy—the larger the investment effort, the larger the rise in future consumption. Thus, the correlations between investment and consumption are entirely different under the two situations : an inverse correlation in a static situation and a direct one in a dynamic situation.

This basic notion is illustrated in a schematic fashion in the table below where some calculations have been made for four cases. In all the cases the present investment as a proportion of national product is assumed to be about eight per cent—a figure which roughly corresponds to the situation in many pre-industrial countries—and then four hypothetical cases are illustrated with rates of growth varying from three to five, seven and nine per cent per year for a ten-year period. The capital/output ratio is assumed to be 3 : 1 and to simplify the illustration no allowance is made regarding the total impact of the differences in the period of maturity of investments—less than a year in many instances (particularly if excess capacity is available in modern and cottage industries and if the per hectare yields are very low in agriculture) to a number of years in other.¹ These assumptions, and the arithmetical derivations therefrom, can be easily altered to accord with different circumstances. The calculations in the table are self-explanatory but they may be summarized in some detail in order to follow their rationale.

¹ In the initial years of growth, these considerations have a crucial significance for attaining a simultaneous increase in both investments and consumption. The most important task for a theory of economic growth would seem to be to expound their implications in details so as to serve as guides to economic policy.

IMPLICATIONS OF RAISING THE RATE AND THE LEVEL OF CAPITAL FORMATION
FOR THE GROWTH OF INCOME AND CONSUMPTION

(An illustrative example for a ten-year period)

Item	I	II	III	IV
<i>In per cent of the real product in the initial year</i>				
<i>I. Assumptions</i>				
1. Real product in the initial year	100	100	100	100
2. Net investment	8	8	8	8
3. Incremental capital/product ratio	3 : 1	3 : 1	3 : 1	3 : 1
4. Projected annual rate of growth in product in per cent	3	5	7	9
<i>II. Implications</i>				
5. Rise in product in the tenth year in per cent	34	63	97	137
6. Volume of investment (in 10 years) needed for the product growth (item 5 \times item 3)	102	189	291	411
7. Average annual investment (items 6 \div 10)	10	19	29	41
8. Investment in the initial year	8	8	8	8
9. Investment in the tenth year	12	30	50	74
10. Rise in aggregate consumption in the tenth year (item 5—item 9 \div item 2)	30	41	55	71
<i>Percentage change in the tenth year compared with the initial year</i>				
<i>III. Conditions for real balance</i>				
11. Investment	50	275	525	875
12. Product	34	63	97	137
13. Consumption	33	45	60	77
<i>Annual percentage rate of growth (compounded)</i>				
14. Investment	4.1	14.1	20.1	25.6
15. Product	3.0	5.0	7.0	9.0
16. Consumption	2.9	3.8	4.8	5.9

TABLE (Contd.)

	I	II	III	IV
<i>Percentage share in the tenth year</i>				
17. Investment	9	18	25	31
18. Consumption	91	82	75	69
<i>IV. Conditions for monetary balance</i>				
	<i>In per cent of real product in the initial year</i>			
19. Additional product generated during 10 years \cdot item 5 \times $(10 \div 2)$	170	315	485	685
20. Additional investment needed during 10 years (item 9—item 8) \times $10 \div 2$	20	110	210	330
	<i>Per cent of the total additional real product</i>			
21. Proportion of additional real product required to be withdrawn for investment, i.e. incremental savings rate (item 20 \div item 19)	12	35	43	48

In the first case, the projected annual rate of growth is three per cent. Over a ten-year period it would lead to a rise in product of 34 per cent; at the given capital/output ratio (3 : 1), such a rise in income would require during the ten-year period a volume of investment (computed on a straight line accelerating scale in time) equal to 102 (item 6) per cent of the real product in the initial year, and net investment as a proportion of real product would rise from eight per cent in the starting year to nine per cent at the end of the period (items 8 and 17). Over this ten-year period, investment would have risen by 50 per cent, income by 34 per cent and consumption by 33 per cent (items 11, 12 and 13).

If the same economy, (case II), were to aim at an annual rate of growth of five per cent, the investment requirements would obviously be much higher. The total for the ten years at the given capital/output ratio would amount to 189 per cent of the real income in the initial year (item 6) and the rise in income and consumption at the end of the period would amount to 63 and 45 per cent respectively

(items 11 to 13) ; investment as a proportion of real product would rise from 8 to 18 per cent (item 17). Thus, in this case, in contrast to the first case, a higher growth in both income and consumption would be made possible by a larger investment effort, even when the initial level of income and investment and capital/output ratios were the same in both the cases.

Cases III and IV illustrate the same point at still higher rates of growth : the higher the investment effort, the higher the rise in income, the larger the possible expansion of consumption.

For any of these cases to be realized in practice without creating serious imbalances between the flow of real goods and money incomes, the necessary conditions are indicated in the Table. So long as the proportions between the rates of growth of the volume of investment and consumption (the real flow of expenditure) —corresponding to a particular rate of growth —are maintained (items 14 and 16), the economy can undertake to grow at any of the rates suggested, be it three, five, seven or nine per cent. The initial level of savings (or investment), as can be seen, is not of much relevance in the subsequently realizable rates of growth. The important factor governing the choice of any particular rate of growth would thus seem to be not the initial level of savings, but the possibility of maintaining the balance between the rates of growth of investment and consumption necessary for realizing that rate of growth.

For maintaining the balance between the monetary and real flows, a rate of growth of 3 per cent would require, in addition to an annual increase of 2.9 per cent in goods and services for the consumers, the withdrawal of 12 per cent of the *additional* money income through voluntary private savings and public savings financed through taxation, loans, price policies and deficit financing (see items 19-21). The proportion of additional income to be withdrawn for a rate of growth of 5 per cent per year would be 35 per cent and somewhat higher for still higher rates of growth. The maintenance of the balance between monetary flows in a growing economy would seem to depend not so much on the level of past or current savings (i.e. eight per cent) but on the ability of the private investors and the public authorities to withdraw the necessary proportions of additional income for investment purposes. It would seem that raising the volume of investment (and corres-

pondingly the volume of savings) depends not on the current rate of saving but on the extent to which future increments in income could be ploughed back. Economic growth then would no longer be conditioned in a very absolute sense by the past, but be financed as a draft on the future.

This would appear to be a surprising result, if savings are looked at in a static way. In reality, however, modern methods of finance, evolved during the last three centuries, suggest that a large part of the grant of a line of credit—whether for one month, three months, a year or longer—to an individual or an enterprise is essentially a draft on the future growth expected to be realized through the efforts of this individual or enterprise. If the individual or the enterprise succeeds, the line of credit is repaid in the stipulated period and the financing is considered a successful venture; if not, it is a failure. Thus, it is essentially the confidence in the future growth that makes such an extension of credit possible. As with individuals, so also with economies. Future growth, thus, need not be conditioned by the level of current savings but could be financed as a draft on the future.

The line of reasoning in this article suggests two conclusions which have great relevance for the economic development of pre-industrial countries.

(1) It indicates that over a period of time raising investment in order to attain higher rates of growth does not require a decline in aggregate consumption ; in fact, the rise in investment and consumption is directly correlated and only those economies which raise the volume of investments faster can expect a potentially larger increase in consumption than elsewhere.²

² In the experience of countries of western Europe, with respect to differences in the growth in their incomes in the last decade "high rates of growth of output have thus usually been associated with high levels, as well as with faster than average rates of growth, of investment ; and the income created by the larger rises in investment appears to have been sufficient in such cases to assure a relatively greater rise in consumption also than elsewhere. These correlations underline the importance of the dynamic functional relationship between income and investment : if a sufficiently high level of investment is achieved, absolute levels of consumption can also be significantly raised over a fairly short period of time, though some sacrifice by consumers may well be required in the early years." ECE, *Economic Survey of Europe in 1958*, Chapter V, p. 2 ; also Patel, Surendra J., "Growth in Income and Investment in India and China, 1952-60" in *The Indian Economic Review*, February 1957, p. 67.

(2) It also suggests that there is no necessary connection between the current rate of saving and the potential rate of growth ; given adequate policies, economic growth could be financed as a draft on future expansion of resources or future growth. In this respect, economic growth may approximate the movement of a self-propelling body. The initial motion would begin not so much owing to the push given by the present rate of savings but owing to the ability to discount the future. Once started, it can become self-perpetuating.

PART III

EXTERNAL BALANCE AND INTERNATIONAL DIVISION OF LABOUR

EXPORT PROSPECTS AND ECONOMIC GROWTH : INDIA*

Food, domestic finance and foreign trade seem to have operated as the unholy trinity thwarting India's efforts to initiate a process of sustained economic growth. The subjects have been examined by numerous expert bodies and often appeared almost solved. But, invariably, the respite so eagerly looked for was only temporary and these ugly problems always reappeared, sometimes in more menacing forms, stressing the need for a re-examination all over again. The recent foreign exchange crisis is a striking illustration of this phenomenon.

During the last two years, imports have been running at a level 40 to 50 per cent higher than in the years preceding the start of the First Five-Year Plan. Export earnings, on the other hand, have remained stubbornly unchanged, showing a marked decline during the first half of 1958. At present they cover no more than about two-thirds of the imports, in contrast to 90 percent or more between 1950 and 1956. This obstinacy of the export trade, rather ungracious to the efforts that India has invested in export promotion, may well continue, as this paper suggests, over the years to come. The import needs, on the other hand, are increasing. Perhaps more important still, the burden of repayment of capital and interest on foreign loans, now amounting to less than 2 per cent of the export earnings, is expected by the Planning Commission to rise during the 'sixties to nearly a fourth of the present export proceeds. There is thus a need for re-appraising the export performance over the last few decades and seeing whether this provides any background for viewing the export prospects for the years to come. This paper is an attempt in this direction. The past experience is reviewed in Section I, whereas Sections II and III are devoted to outlining the perspectives and their implications for economic growth.

The exports from India accounted for 1 to 1½ per cent of the world trade in post-war years. As in some of the very large countries of the world, such as the United States, the Soviet Union and China,

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foreign trade in India on the whole touches a relatively small, though a very important, part of domestic economic activities. The total value of India's exports amounts to no more than 6 to 7 per cent of the national income. Although exports account for such a small share of the national income, they play a very strategic role in the Indian economy. They provide the means—foreign exchange earnings—with which the pressing import needs can be financed.

I. LONG-TERM TRENDS

Stagnation in Exports

The developments that have taken place in the foreign trade of India over the last quarter of a century are shown in Tables 1, 2 and 3. These changes, however, have to be interpreted with a great deal of caution, since very important territorial changes¹ affecting significantly the needs of imports and availabilities for exports, have taken place in this period. The indices of volume and unit value of exports and imports (*see* Table 1) are at best very poor reflectors of these changes. Bearing these qualifications in mind, several broad observations can be made.

(a) It is striking that the volume of exports has declined sharply over the last three decades, whereas the volume of imports has changed much less. A proper comparison with 1929, of course, requires adding the present volume of exports and imports of Burma and Pakistan and subtracting the trade among the three countries. A rough-and-ready adjustment in this direction suggests that the volume of exports from these three countries in the last quinquennium is still a seventh lower than in 1929; the volume of imports, on the other hand, would seem to be higher by about a seventh. The quantum of world exports has increased by more than two-thirds in the course of the last two decades, but the combined volume of exports from Burma, Ceylon, India and Pakistan is now actually lower by a tenth.² Thus, the vast expansion in world trade over the last three decades has simply by-passed the Indian sub-continent.

¹ The regions now constituting Burma and Pakistan were separated from the sub-continent of India during the 'thirties and 'forties, respectively.

² The decline would be obviously much greater if trade among these four countries and exports of cotton textiles to other countries (which were previously used within the sub-continent) are excluded.

TABLE 1

DEVELOPMENTS IN THE FOREIGN TRADE OF INDIA

(Index numbers, 1953=100)

Item	1929	Average of the years			1955	1956	1957
		1937-39	1946-50	1951-55			
<i>1. Volume</i>							
Exports	169	162	103	102	115	110	119
Imports	148	131	115	118	125	147	168
<i>Unit value</i>							
Exports	37	24	87	114	98	102	102
Imports	35	25	81	102	95	99	107
<i>Terms of trade</i>							
	106	96	108	112	103	103	95
<i>2. Volume of exports</i>							
World ex-ports	.	71 ^a	77 ^a	102	114	124	131
Burma, Ceylon, India, Pakistan : exports.	...	118 ^a	93 ^a	102	111	110	110

SOURCE : United Nations, *Statistical Yearbooks*, 1953 and 1955, and *Monthly Bulletin of Statistics*.

NOTE : The indices should be used only as approximations in view of the very serious changes in the geographical coverage, composition of trade and methods of calculations over such a long period. Data for 1937-38 refer to present territories of both India and Pakistan, and 1929 data include Burma also.

^a 1937-38 only.

^b 1948-50 only.

(b) These developments were reflected in strains on balance of payments in recent years. Instead of export surpluses, common in the pre-war period, there are now continuous import surpluses. The long-term developments have thus created a basic imbalance between exports and imports, a situation which efforts at export promotion and continued import restrictions in post-war years have failed to alter significantly.

(c) In the development of this imbalance, the changes in terms of trade do not seem to have played a major role (except during the 'thirties). The favourable change in the terms of trade in the early post-war years has disappeared, with the terms of trade now falling to the 1937-38 level.

Direction of Exports

The historical trend in the decline of the volume of exports assumes great significance when the data on the direction of foreign trade are related to it (see Tables 2 and 3). In general, the changes in the direction of India's foreign trade have remained minor over the last few decades. It is true that the proportion of exports going to the United Kingdom has increased slightly; in contrast, there was a sharp decline in exports going to continental western Europe, particularly Germany. Trade with the dollar area is now somewhat higher, whereas the share of Japan remains far below that in 1928.

Broadly speaking, the private-enterprise industrialized countries have continued to account for over 70 per cent of India's exports. This, when read with the changes in the volume of trade pointed out in (a) above, suggests that the industrialized countries have increased the volume of their exports to India but have reduced the volume of their imports from India.

The share of the other pre-industrial countries in India's exports rose very sharply in the early post-war years when the exports from the European countries had not fully recovered. Since then, the proportion has continued to decline, it now being a little higher than in the late 'twenties.

So far, the centrally planned economies do not account for a significant proportion of exports from India, although their share has increased very rapidly in the last two or three years.

As can be seen from Table 3, the value of imports from all

primary-producing countries into western Europe, the United States and Canada has nearly trebled between 1928 and 1956. Their imports from India, Pakistan, Burma and Ceylon, however, have increased very slightly. Since prices during this period have risen considerably, it is obvious that the volume of imports from these countries into the industrialised countries, India's traditional trade partners, has fallen markedly. The stagnation of India's exports is thus not due to the fact that India was dealing with trade partners whose imports were stationary or declining. Indian exports have simply failed to share in an otherwise expanding market.

TABLE 2

THE DIRECTION OF EXPORTS FROM INDIA^a

<i>Destination</i>	<i>1928^b</i>	<i>1938^b</i>	<i>1950</i>	<i>1956</i>
<i>Value in millions of current U.S. dollars</i>				
<i>Total exports</i>	<i>1,250</i>	<i>617</i>	<i>1,172</i>	<i>1,251</i>
<i>of which to</i>				
<i>Share in per cent of total</i>				
1. <i>Private-enterprise industrialized countries</i>	<i>77</i>	<i>75</i>	<i>62</i>	<i>71</i>
United Kingdom	22	34	22	31
Western Germany	10 ^c	5 ^c	2 ^c	2
Other western Europe	18	13	8	9
Australia, New Zealand and Union of South Africa	3	3	6	5
Dollar area	14	11	23	19
Japan	10	9	1	5
2. <i>Centrally planned economies</i>	<i>2</i>	<i>3</i>	<i>1</i>	<i>6</i>
China	2	1		1
Eastern Europe and U.S.S.R.		2	1	5
3. <i>Other pre-industrial countries</i>	<i>21</i>	<i>22</i>	<i>37</i>	<i>24</i>
Rest of the sterling area	10	15	27	16
Middle East	...	3	4	6

SOURCES : League of Nations, *Network of World Trade* (1942) ; United Nations, *Direction of International Trade* (1953, 1955 and June 1957).

^a Pre-war data refer to India, Pakistan and Burma for 1928, and to India and Pakistan for 1938.

^c Whole of Germany.

The stagnation in the exports from India is associated with a fundamental shift that has taken place in the import demand of the industrial countries.⁷ Throughout the nineteenth century and the first quarter of the twentieth century, agricultural products accounted for over 90% of the imports into the industrial countries from the primary producers. In recent decades, however, these commodities are giving way to petroleum and mineral products, the exports of which now account for nearly two-fifths of the total exports from the primary producers to industrial countries. Among the agricultural exports, the decline was much sharper for raw materials than for food products.

TABLE 3
IMPORTS INTO INDUSTRIAL COUNTRIES FROM INDIA, PAKISTAN, BURMA AND CEYLON

Destination	Imports from		Imports from India, etc. as a share of imports from all primary producers, percentage	
	All primary producers	India, Pakistan, Burma and Ceylon		
Billion U.S. dollars at current prices				
Western Europe	1928	4.5	0.70	15.6
	1937-38	3.9	0.47	12.1
	1952	10.2	0.73	7.2
	1956	12.2	0.79	6.5
United States and Canada	1928	2.0	0.20	10.1
	1937-38	1.4	0.11	8.2
	1952	6.0	0.34	5.7
	1956	6.5	0.31	4.7
Total western Europe, United States and Canada	1928	6.5	0.91	14.0
	1937-38	5.3	0.59	11.2
	1952	16.2	1.07	6.6
	1956	18.8	1.11	5.9

SOURCE: United Nations Economic Commission for Europe, *Economic Survey of Europe in 1957*, Chapter IV, p. 18, and Appendix Table IX. The figures are based on the statistics of the importing countries and are therefore not strictly comparable with those in Table 1.

⁷ For a detailed discussion, see United Nations Economic Commission for Europe, *Economic Survey of Europe in 1957* (Geneva, 1958), Chapters IV and V. This and the next paragraph are a broad summary of the findings in this study.

This has acted very unfavourably on the exports from many countries. Thus, for instance, the combined current value of exports from Burma, India, Pakistan, Ceylon, Indonesia and Indo-China in Asia, Egypt in Africa and Argentine in Latin America in 1956 was about the same as in 1928, although the current value of world as well as primary producers' exports increased two and a half times during this period. In 1928 these areas constituted nearly half the population of primary-producing countries and accounted for slightly less than half the exports of the primary producers. As a result of the sharp structural shift in the import demand of the industrial countries, however, the share of these primary producers has now shrunk to only a sixth of the total exports from the primary producers.

Commodity Composition of Exports

This structural shift in the import demand of the industrialized countries in the west, India's traditional trade partners, is illustrated by the performance of the commodities that predominate in India's export trade. The level of exports of a country is influenced by several factors, such as the changes in demand (external as well as internal) and the adaptability of output to these changes. An analysis of the developments in the demand and supply of the major exports items that figure in India's foreign trade is thus essential for a proper understanding of the stagnation in the over-all volume of exports.

Agricultural commodities, whether in a raw form as tea, tobacco, spices, etc., or in a more elaborate form as cotton and jute textiles and vegetable oils, form the bulk of India's exports, accounting for nearly three-fourths of the total. Thus, for instance, jute manufactures make up nearly a fourth, tea a fifth and cotton textiles a tenth of the total (the three together are responsible for half of the total) ; another quarter is added by nuts and vegetable oils, spices, tobacco, fruits and vegetables, gums and resins, and hides, skins and leather. Non-metallic minerals and metal ores (mainly mica, iron ore and manganese) account for only 3-5 per cent. The factors influencing the exports of some of the major items are examined below.

Jute and Manufactures. The data on changes in world demand and output over the last half a century are summarized in the table below :

	<i>In thousand tons (annual averages)</i>					
	1900-9	1910-19	1920-29	1930-39	1940-49	1950-54
World consumption	1,300	1,527	1,681	1,711	1,469	1,789
Of which : United States	266	314	383	323	293	302
Others	1,034	1,213	1,298	1,388	1,176	1,487
Output (India plus Pakistan)	1,312	1,556	1,522	1,499	1,420	1,684

SOURCE : FAO, *Jute, Commodity Series No 28*, pp. 52-3, 63-4.

On the whole, the world consumption of jute has expanded but little over the last five decades; while weather may have played some part in restricting the output of raw jute in certain years, it is clear that the major reason for this stagnation is the limited world demand rather than the ability to expand output. The peak output in the years 1912-14 (First World War), 1939 and 1940 (Second World War) and 1951 and 1952 (Korean conflict) was nearly equal in all these instances—illustrating that a rise in demand could induce sizeable increases in output. In the more recent period, the output in the two years 1951 and 1952 was some 40 per cent above that in the preceding as well as the following three years.

Tea. Next in importance is tea. As the data in the table below show, world supplies have increased faster than world imports, and output in India has again increased considerably faster than exports. The increase in world imports has lagged behind growth in world population.

<i>Item</i>	<i>1934-38</i>	<i>1949-51</i>	<i>1952-54</i>	<i>Annual averages</i>	
				<i>1949-51</i>	<i>1952-54</i>
		<i>Million lb.</i>		<i>Index. No</i>	<i>Index. No</i>
				<i>1934-38=100</i>	<i>1934-38=100</i>
World supplies*	981	1,166	1,233	119	126
World imports	871	913	996	105	114
Consumption in producing countries*	110	253	237	230	215
India ¹⁰ supplies	(390)	610	625	156	160
Domestic absorption	(70)	170	190	243	271
Exports	(320)	440	435	138	136

SOURCE : International Tea Committee, *Report 1954-55*, pp 28-9.

* Defined as output in the main tea-producing countries and exports from China and Japan.

* Derived by subtraction.

¹⁰ Pre-war data adjusted to refer to present-day Indian territories.

Cotton Textiles. The general decline in import demand for cotton textiles is too well-known to need additional emphasis. For instance, world trade in cotton and rayon piece goods declined by 10 per cent between 1910-13 and 1926-28, by 13 per cent in the next ten years, and by a further tenth between 1936-38 and 1951¹¹ (notwithstanding the statistical boost given by the partition of India, whose cloth output previously consumed by Pakistan began to appear in world exports). Although the world population increased by more than half during this period, the actual volume of textile exports was thus nearly 30 per cent lower.

The changes in output and exports of cotton cloth in India in recent years are shown below :

	1950	1951	1952	1953	1954	1955	1956
	<i>Million yards</i>						
Output	3,660	4,080	4,596	4,884	5,004	5,100	5,306
Exports	1,116	780	600	600	864	744	744
	<i>in % of output</i>						
Exports	30	19	13	12	17	15	14

SOURCE : *Monthly Abstract of Statistics* (New Delhi).

Thus, output has gone up by nearly 45 per cent, but exports have fallen by a third from the peak levels in the early post-war years.

Groundnut Oil. The developments in the output and exports of groundnuts and oil (the most important item in the group nuts and vegetable oils), as may be seen from the table below, ran again on similar lines.

<i>Groundnuts</i>	1934-38	1948-52	1953-55	1948-52	1953-55
	<i>Thousand tons in nuts-in-shell equivalent¹²</i>			<i>Index numbers pre-war = 100</i>	
	<i>Annual averages</i>				
World output	9,100	9,900	10,930	109	120
World exports	3,240	1,810	2,070	56	64
Consumption in producing countries ¹³	5,860	8,090	8,860	138	151
India : output	3,196	3,197	3,836	100	120
Exports	1,050	240	240	23	23
Domestic availability ¹³	2,146	2,957	3,596	138	168

SOURCE : FAO, *Yearbooks on Production and Trade*, and *Monthly Bulletins*.

¹¹ ECE, *Economic Survey of Europe Since the War* (1953), p. 191.

¹² Conversion factors used are : oil equivalent=30% of unshelled and 43% of shelled weight of groundnuts.

¹³ Derived by subtraction.

World output in recent years is a fifth higher than in pre-war years, whereas world exports are a third below : exports have declined from 36 per cent of total output to only 19 per cent. In India, output has increased by 20 per cent (as a result of partition the population supplied from domestic output is now somewhat lower than in pre-war years), whereas exports have fallen to only a fourth of the pre-war level.

The brief review of the four major commodities that figure in India's exports indicates that in all cases domestic supply has increased and can be increased even more over a period of time if there is an adequate demand. As far as the exports of minerals and ores (mica, manganese and iron ores) are concerned, export demand rather than ability to expand is again the decisive factor. The stagnation in the overall volume of exports (the increase in the volume of tea being offset by the decline in others) has continued despite strenuous efforts at export promotion and a preparedness to export even if it meant restrictions on, or very limited increases in, domestic supplies, thus underlining stagnant export demand as the main cause in keeping the export level stable.

Against this background, it is not surprising at all that the export expectations of the First Five-Year Plan were not fulfilled. The Planning Commission had estimated that the volume of exports at the end of the Plan period would rise by 30 per cent compared with that in 1948-49, and by 10 per cent compared with the boom year 1950-51. In practice, the average volume of exports for the Plan period was only 10 per cent higher as compared with 1948-49, and about 10 per cent lower as compared with 1950-51. The increases expected in the exports of the major commodities were also not realized.

The reason for the stagnation in India's export trade may be simply expressed. India has been trying to sell more of the wrong things to the wrong places. The efforts at export promotion can no doubt be increased, and high-pressure salesmanship in export markets may increase somewhat the exports to some destinations. The main fact, nevertheless, remains that offering more of the same things to the same people, who no longer want more of them, lies at the basis of a remarkably poor performance in the export trade over the last three decades.

II. EXPORT PROSPECTS

Targets for the Second Plan Period

The export perspectives for the Second Five-Year Plan (1956-60) were set out by the Planning Commission as shown in Table 4. With the poor performance of this sector during the first Plan as a background, it was to be expected that the targets during the second Plan would be modest. The value of total exports in the last year of the Plan (1960-61) is to be some 9 per cent higher than in 1954 (a year with low exports), though not much different from the annual average for the last eight years. The annual average exports for the Second Five-Year Plan period as a whole, however, are in fact expected to be some 3 to 4 per cent lower than the annual average for the last eight years.

There are some interesting changes with regard to export expectations for several commodities as compared with the first Plan. Instead of raising the volume of exports of jute yarns and manufactures from 929,000 tons in 1948-49 to 1 million tons in the last year of the first Plan (1955-56), it is now recognized that it will be good if the exports during the second Plan run at an annual average of some 875,000 tons.¹⁴

The target of raising the exports of cotton textiles to 1,000 million yards, unrealized during the first Plan, reappears as a hardy perennial for the second Plan. "Cotton textiles," wrote the Planning Commission, "is one of the oldest industries in the country, and it would be natural to expect it to play an increasing role as a foreign-exchange earner. On the other hand, the domestic demand for textiles is on the increase."¹⁵ Here the Commission was worried that rising home demand would encroach upon export availabilities. The experience of the cotton textile trade over the last half century, and of India in the seven to eight years, however, suggests that this is a narrowing market in general. A more likely probability, clearly borne out by the data for late 1957 and early 1958, is that the volume of cotton textile exports will be lower than in 1954. The actual value of textile exports may even show a greater fall owing to the decline in the unit price of exports. Instead of a rise in earn-

¹⁴ Planning Commission, *First Five Year Plan*, p. 458.

¹⁵ Planning Commission, *Second Five Year Plan* (New Delhi, 1956), p. 97.

ings by Rs. 12 crores, there will probably be a fall of some Rs. 10 crores or more from the earnings in 1954.

The additional proceeds of Rs. 20 crores expected from the "other" miscellaneous items are "assumed to bring in the same level of earnings as at present (1955)."¹⁶ The level in 1955, however, was higher by Rs. 20 crores than in 1954. The increase expected is therefore not the result of any development, but only a statistical illusion caused by comparison with a low base year.

There has been considerable uninformed talk about the gains that may be realized from increasing the exports of the products of many of the new industries in India. The Planning Commission itself had raised hopes in this respect in the first Plan. During the second Plan period the expectations put forward by the Planning Commission are rather modest, since at present this group accounts for only $\frac{1}{2}$ per cent of the total exports. As the Planning Commission expressed it :

"Mention may, however, be made of the export possibilities for some of the new industries which have developed in recent years. The hope was expressed in the first Plan that new lines of export, particularly in the light engineering field, e.g. sewing machines, electric fans, cycles, etc., will assume increasing importance as the economy gets diversified. These exports have not yet reached a level where their earnings could be regarded as quantitatively significant. It will be some time before these new industries establish themselves firmly and secure sizeable export markets."¹⁷

The change expected from this item during the second Plan is, as can be seen from the table, negligible.

Thus, there is little real basis for expecting any marked increase in the export proceeds during the second Plan. All that can be said is that they may go up a little or down a little, but certainly will not rise significantly. A rise in the volume of exports of some items may even be offset by a fall in the export price. On the basis of the experience of the first Plan, as well as from prospects outlined above for the second Plan, it is fair to conclude that India's export earn-

¹⁶ Planning Commission, *Second Five-Year Plan* (New Delhi, 1956), p. 98. One crore=ten million.

¹⁷ *Second Five-Year Plan*, p. 98.

TABLE 4

ESTIMATED EXPORTS DURING THE SECOND FIVE-YEAR PLAN, 1956-60

Item	Annual Last Change bet- Crude ^{1a} 1954 aver- year of ween 1954 indications current age Plan and for 1975, prices, 2nd. 1960- 1960-61 Rs. crores ^{1a} Rs. plan 61 in 1955 crores ^{1a} prices					Rs. crores ^{1a} in 1955 prices	%	
1. Items showing little change :								
Tea	131	127	133	2	2	150		
Jute yarns and manufac- tures	122	122	118	-4	-3	110		
Cotton yarns and manu- factures	72	75	84	12	18	60		
Hides, skins and leather	29	28	28	-1	-3	30		
Cotton, raw and waste	19	22	22	3	17	20		
Coal and coke	6	5	3	-3	-50	5		
Chemicals, drugs and medicines	5	5	5	—	—	10		
"Others"—(miscellaneous)	130	145	150	20	15	175 ^{1a}		
Total above	514	529	543	29	6	550-570		
2. Items showing marked rise .								
Vegetable oils	11	22	24	13	118	40		
Tobacco	12	15	17	5	42	30		
Metalliferous ores, scrap iron, steel	23	23	27	4	17	180-280 ^{1a} ,		
Cutlery, hardware, vehicles, electrical goods and ap- paratus and machinery	3	4	4	1	33			
Total above	49	64	72	23	47	250-350 ^{1a}		
Total exports	563	593	615	52	9	800-900		
Total imports	620	868	786	166	27	800-900		
Trade balance	-57	-275	-171	-108				

SOURCE : Planning Commission, *Second Five-Year Plan* (New Delhi, 1956) pp. 97, 99.

^{1a} These are only illustrative figures for emphasizing that an expansion by a third to a half in total proceeds would require very big increases in the exports of "Items showing marked rise," particularly ores, etc. and the new products such as "Cutlery, hardware, etc."

^{1b} Equals ten million.

ings for the decade as a whole will show little change, although the national income, assuming that the expectations of the second Plan are fulfilled, will have risen by over 45 per cent. This conclusion only reinforces the generally stagnant character of India's export trade as discussed in the first section of this study.

Long-Term Perspectives

With the imperfections inherent in the tools of economists, any attempt at looking into the future can only produce a rather faint and foggy image. This is true in general, but, given the basic direction and composition of India's exports, there are a number of fairly firm elements in the export set-up of India making it possible to hazard guesses without undue fear of being too much in the wrong. Since the Planning Commission have generally used the year 1975 for some of their projections, the same year will also be used in this study to indicate the broad lines along which the export sector may be expected to proceed (*see* Table 4).

Tea. Only a few countries predominate in the imports of tea. For instance, the United Kingdom alone accounts for 88 per cent of the total imports into all the western European countries. With the present consumption of tea at more than six cups a day²⁰ per person aged ten and over in the United Kingdom and Ireland, it is barely likely that imports of tea will expand much. Other countries may increase imports of tea, but tea is only a marginal drink for them. Here again, severe competition, particularly from the new plantations in Africa, may be expected. All in all, world imports of tea may be higher by about a fifth, and it should be possible for India to maintain the present volume of exports, and may be improve it somewhat.

Jute and Jute Manufactures. The exports of jute yarn and manufactures have shown many ups and downs in the last forty years or more, but at all the peak points the export volume has remained roughly stable. This is in the main the result of a decline in the grain trade, increased use of paper, plastic and other packing materials in place of jute and growth of bulk transport and reduced handling. *In addition, the competition from Pakistan is growing, and jute manufacturing has developed in a number of continental*

²⁰ Assuming that 1 lb. makes 200 cups of tea.

west European countries. In the light of these factors, the probabilities are very strong that the volume of jute textile exports from India will also decline during the next two decades. There may be some gain in volume if a marked fall in unit price were to make jute a more competitive commodity ; but in that case the fall in unit price will only serve to offset the increases in volume, so that the net proceeds will in fact be lower.

Cotton Textiles. Looking forward to the next two decades, it is fairly certain that both the volume and unit price of cotton textile exports will fall. This has been the long-term trend and recent expansion in the use of synthetic fabrics will accelerate it. Moreover, with many newly developing countries now starting their own textile mills, it would be highly imprudent to expect a larger share in a narrowing and increasingly more competitive market.

Hides and Skins, Leather, Cotton (Raw and Waste) and Coal and Coke. These items account for about 10 per cent of total exports. The volume of exports of the first two has fallen over a long period, and the exports of coal and coke are nominal, in that they are by and large for bunkering purposes. The exports of none of these items will increase; there may well be a decline

"Other" Miscellaneous Items. The group "other," accounting for nearly a fourth of the export trade (see Table 4), consists of various items, such as spices, shellac and resins, mica, coir and manufactures, woollen and silk cloth, sugar, cement, cashew kernels, etc. The Planning Commission assumed that export proceeds from this group during the entire Second Five-Year Plan would remain at the 1955 level. The exports of the commodities that constitute this group have either remained stagnant or fallen over the last few decades. No real increases can therefore be expected from this group over the next two decades.

When all the items described above are added up, 90 per cent of the exports from India are already accounted for. The only commodities that remain are some agricultural products (tobacco and vegetable oils), ores, metals and scrap, and products of the new industries, such as chemicals, drugs and medicines, and cutlery, hardware, vehicles, electrical goods and appliances, and machinery. Of these, the agricultural products, such as tobacco and vegetable oils, account for half of this group or 5 per cent of the total exports and may be expected to increase at the most by around 50 per cent by 1975.

As far as 95 per cent of the exports from India are concerned, there is thus little likelihood of any marked increase even over the next two decades. In the past three decades the volume of exports of these items has fallen, and the trend may continue.

The prospects of growth in the other items may be considered bright in that they form the core of the dynamic or the most rapidly expanding items in world trade. The actual level of the exports, however, will largely depend on the advantages, in terms of prices, quality and terms that Indian products will offer in the world markets, which can only be expected to become more and more intensely competitive.

How hard is going to be the task of export expansion in India may be arithmetically illustrated. In order to obtain an increment of one-third in total export proceeds, it will be necessary to expand the exports of the dynamic commodities, now accounting for 5 per cent of the total, by nearly seven times. An expansion of the total by half would require more than a tenfold increase in the dynamic sector. These are large magnitudes indeed! They will require a basic change in the commodity composition of the export trade. The dynamic items will have to rise from 5 per cent to between a fourth and a third of the total exports to attain an increment of a third to a half in India's export earnings over the next twenty years.

The difficult but very essential task of expanding foreign trade may also be examined from the angle of the direction of the trade. The basic feature of India's trade relations with its traditional trade partners, the private-enterprise economies of the western world, has been stagnation or decline. This was also true of the centrally planned economies, but for different reasons (see Table 2). The stagnation resulted from the absence of trade and other contacts, so that these markets cannot be considered saturated for India's traditional export items. In the last two or three years India's exports to these areas have expanded two to three times, although their share is still only 6 per cent of the total.

Here the possibilities of expansion, it would seem, are not closed in the economic sense, that is, simply not needing more of the products that India usually offers. The expansion of these economies over the last few decades has proceeded without recourse to the materials that India usually exported to the western economies,

and it may well be that these materials, so far not available on the markets of the centrally planned economies, will command a marked cost advantage over the substitutes now in use there. The barriers against increased trade are thus non-economic in character. If they can be overcome, this will open up the prospects of expanding the exports of the non-dynamic commodities. In that case, India's exports can grow immediately without waiting for a thorough diversification of the commodity structure of exports. In view of the low share of the centrally planned economies in India's exports, it should be emphasized that the expansion would have to be in terms not of a few per cent but of a few times over the present magnitudes of the total exports to them.

This rather long discussion may be briefly summarized thus : even a modest increase of a third to a half in the export proceeds over the next two decades would require a big change both in the direction and in the commodity structure of exports. Without such changes, Indian exports can only be expected to drift along, as they have done in the past, a downward curve, despite the increasing number of expert bodies and export promotion councils that may be appointed to reverse it. It is better part of wisdom to accept this unwelcome and brutal fact and to prepare to live with it.

III. EXPORT PROSPECTS AND ECONOMIC GROWTH

The development of the export trade affects the Indian economy in two ways : one direct and the other indirect. In the first place, growing export demand means a greater scope for the expansion in the production of the commodities involved. The increased output of these commodities will be reflected in the overall growth of the economy. Since most of the commodities exported from India are unlikely to show marked increases over the next two decades, the expansion of their output will be limited, and to that extent the overall rate of growth will also be depressed.

The lagging behind of output in the export sector would not be a matter for much concern as long as the rate of growth of output in the other sectors of the economy could be raised sufficiently to offset the slow development in the export sector. It is in this field, however, that developments in the export trade can be ex-

pected to exercise a decisive influence on the growth of the Indian economy by affecting the volume and the rate of expansion of import capacity. Since India depends on imported capital equipment for more than half of the total equipment used in investments in the country, the slow expansion in export proceeds, and hence import capacity, places a serious limitation upon increasing the imports of capital-goods. The volume and the rates of growth of investment, and therefore real income, in the country are thus inhibited.

The points raised above have an important bearing on the economic development of the pre-industrial countries in general. During the last decade considerable attention has been devoted to finding a solution to the widening gap in the levels of living between the industrial and the pre-industrial countries. Reversing this process has now been accepted as an essential ingredient in the work of all the international organizations. The gap, however, has continued to widen in recent years,²¹ suggesting that, despite the widespread recognition given to the need for narrowing international disparities in living, the analytical tools used to approach this problem perhaps need much refashioning.

Simply stated, to initiate the process of narrowing the gap requires that the rate of growth of real product in the pre-industrial countries has to be higher than in the industrial countries and the rate of growth of investment and, therefore, of capital-goods supplies has to be substantially higher still. Since, under the present international division of labour, capital-goods are almost exclusively imported from the industrial countries, expanding the supplies of these goods means that import capacity (i.e. export proceeds) has to increase correspondingly. The growth of import capacity, however, is dependent not upon the need for enlarging the supplies of capital-goods for development but upon the import demand of the industrial countries, which has in general tended to grow at a rate lower than that of the real product in industrial countries. Thus the needs of capital-goods imports outrun by far the supply potential of capital-goods as a result of the much slower growth of import capacity.

Consequently, whenever a pre-industrial country embarks upon

²¹ See United Nations, *World Economic Survey*, 1955, p. 5 and *Economic Survey of Europe in 1958*, Chap V, p. 5.

a determined drive to expand investments, it is soon faced with a serious balance-of-payments crisis. The pace falters, the drive slackens and the will evaporates in a frustrating stagnation. The reality of the trade relationship between the industrial and the pre-industrial countries and the present international division of labour which it reflects, thus act as a built-in depressor leading to a continuous widening rather than a narrowing of the gap. Admittedly, the analysis of the trade flows here is a very simplified, and an incomplete version of the causal mechanism which lies at the root of the widening gap; problems such as domestic mobilization of resources and capital exports from the industrial countries are kept out of consideration. Even in its bare essentials, however, it would seem to have more to commend itself as a much closer approximation to reality than the postulates of the more sophisticated theory of international trade.²² In the quest for unravelling the complex, the simple and obvious is too often forgotten.

The basic argument of the preceding paragraphs may be understood more clearly from Table 5, where illustrative projections for various sectors of the Indian economy are shown. By assuming certain capital/output ratios, the Planning Commission estimated that in order to increase real income by 150 per cent by 1975-76, the volume of investment will have to be raised by 500 per cent. According to the indications in Section II of this study, however, the volume of exports, and hence of import capacity, may not be expected to rise by more than 33-50 per cent; that is, the expansion in the import capacity will be lower than in the real income and much lower than in the investments. Imports, assumed to equal export proceeds, can thus rise by no more than a third to a half.²³ Expressed in other words, the changes in export proceeds (and import capacity) and investments as a proportion of national

²² Folke Hilgerdt, well known for his contributions to the present ideas about the "network of international trade," noted this in a recent paper. "The fact," he wrote, "that many underdeveloped countries do not derive the advantages from modern transportation and commerce that theory seems to demand is one of the most pertinent facts in the present international situation and cannot be easily dismissed." Paper at the *World Population Conference*, Rome, 1954. Cited by Gunnar Myrdal in *Economic Theory and Underdeveloped Regions* (Bombay, 1958), p. 159.

²³ In the 'sixties the burden of repayment of loans and interest alone may be expected to be as high as fifth of the export proceeds. Imports will in fact have to be correspondingly lower.

TABLE 5

ILLUSTRATIVE EXAMPLE OF THE IMPLICATIONS OF EXPORT PROSPECTS FOR INDIA

<i>Item</i>	<i>Actual</i> <i>1955-56</i>	<i>Plan</i> <i>1975-76</i>	<i>Percentage change</i> <i>between 1955-56 and</i> <i>1975-76</i>
<i>Billions of Rupees in</i> <i>1952-53 prices</i>			
National income	108.0	273.0	150
Exports	6.0	8.0-9.0	33-50
Imports	7.5	8.0-9.0	10-20
Net investment	8.0	47.0	500
of which			
Wages and salaries ²⁴	3.0	19.0	500
Capital goods ²⁴	5.0	28.0	500
of which			
Domestic capital goods out- put	2.0	23.0	1,100
Imported capital goods ²⁵	3.0	5.0	66
<i>Index numbers</i>			
Industrial production ²⁶	100	650	550
<i>Percentages of na- tional income</i>			
Exports	6	3-4	
Imports	7	3-4	
Investment	7	17	

NOTE. The figures are rounded to the nearest five or ten. The estimates of national income and net investment in 1975-76 are taken from the Planning Commission, *Second Five Year Plan* (New Delhi, 1956), p. 11.

²⁴ Net investment in 1955-56 broken down into the following rough proportions: wages and salaries about two-fifths, domestic capital-goods one-fourth and imported capital equipment one-third. 1975-76 estimates based on maintaining the ratio of wage costs at two-fifths of total investments.

²⁵ 40 per cent of total imports in 1955-56 and assumed to be at the most 60 per cent of imports in 1975-76.

²⁶ Assuming an increase of 60 per cent during each plan period.

income will be in inverse directions; export earnings will fall from 6 per cent of national income in 1955-56 to only 3-4 per cent in 1975-76, whereas investment will rise during this period from about 7 to 17 per cent of a much larger volume of national income.

By continued and strict import controls, it may be possible to raise the share of capital-goods imports in total imports from 40 per cent at present to between 50 and 60 per cent by 1975-76. In view of the fact that the growth of industries will also necessitate enlarged imports of essential raw materials and fuel oils, this can hardly be considered an easy task, though it may have to be done. It will then be possible to raise the volume of imported capital goods faster than total imports—say by about two-thirds. But the volume of investment and, assuming a constant proportion of labour costs and capital-goods in investment, the availability of capital-goods has to increase by 500 per cent to attain a growth of 150 per cent in real income. As stated above, the slow development of the exports will thus act as a built-in depressor upon economic growth.

Obviously, if economic development is to be assured, it will be necessary to raise the domestic output of the capital-goods sufficiently fast to supply all the capital-goods that are needed for net investment. As can be seen from Table 5, the present domestic supply of capital-goods will have to be raised more than eleven times, or doubled every five years.²⁷ Since total industrial output may not rise by more than 50-60 per cent every five years, the output of consumer goods will obviously increase even less rapidly. The basic parameters in the example may be varied to suit somewhat different assumptions. But the central implication of the slow growth of India's export trade will still remain that the domestic output of capital-goods will have to be raised much faster than that of consumer goods; otherwise there will not be an adequate volume of capital-goods forthcoming for investments needed to assure economic growth. Many pre-industrial countries, with export prospects not altogether different from India's, will be faced with a similar situation.

²⁷ The actual requirements will be even higher because with the cumulative expansion of the stock of the capital, the proportion of replacement investments in total gross investments will also rise. See E. D. Domar, "Depreciation, Replacement and Growth," *Economic Journal*, March 1953.

In the light of the foregoing, it would seem that the whole question of the development of capital versus consumer goods industries has been discussed without serious reference to the long-term economic realities in India and other pre-industrial countries. The enthusiasts for alleged benefits of the present international division of labour have in the main concentrated on the cost advantages that follow from continuing to export agricultural raw materials and finished products based thereupon and to import capital equipment. These are often reinforced by suggesting that the investments should be made preferably in the consumer-goods industries, which require less capital and are quick-maturing, rather than in the capital-goods industries; and this would lead to a faster growth. What is assumed, of course, is that the export trade of a pre-industrial country would invariably be expanding fast enough to provide for the capital-goods imports needed for the rapidly rising volume of investments. In reality, however, this assumption is valid for a few petroleum-producing countries only, which account for less than 5 per cent of the population of the pre-industrial world. For most of the other pre-industrial countries, however, it will be necessary to break the stranglehold of the slowly rising export proceeds (and hence ability to import capital-goods) upon economic growth by a sharply accelerated rate of domestic capital-goods output; the situation will be substantially different if capital transfers on a very large scale will be available.

The protagonists of the heavy industries, on the other hand, have often used the crude but telling argument: India has mountains of the highest-grade iron ore, so why not smelt iron and steel and fabricate it? Some of the left-wing economists have cited the experience of the Soviet Union and other centrally planned economies in support of the priority for capital-goods industries; the association of an ideology with an argument made it easy for the non-believers to reject it.

Apart from considerations of ideology or of theoretical elegance, however, the inevitable implication of the stagnation of exports and hence import capacity is that an adequate flow of capital-goods for investments cannot be assured without a much faster development of the heavy industries than any other sector of the economy for some years to come. The import policy will, therefore, have to be strictly and rigorously selective, not just encouraging

all capital-goods imports as against consumer goods, but even within capital-goods imports giving the highest priority to the imports of the capital-goods that produce capital-goods. This generalization also applies to those pre-industrial countries which cannot expect a rapid enough increase in their export proceeds to provide adequately for the needed capital-goods imports. In the process, the present international division of labour will be altered. India, a primary producing country, will reduce rapidly its dependence on capital-goods imports for economic growth in the same manner as the industrialised countries have reduced their dependence on the exports of the agricultural raw material producing countries.

REJOINDER TO COMMENTS ON "EXPORT PROSPECTS AND ECONOMIC GROWTH"*

THE observations made by Dr. A. Krueger and Professor P. T. Bauer on my study "Export Prospects and Economic Growth: India" (*Economic Journal*, September 1959) centre around the theme that the policies of the Government of India are much more to blame for the stagnation of India's exports than the slow-expanding import demand of the industrial countries for primary products of agricultural origin.

1. The continued stagnation of exports is accepted by Dr. A. Krueger as "correct in total," but she is not at all surprised at this, since according to her India's economy was also "stagnant..static" in this period. Because *per capita* income in India did not change much, Dr. Krueger seems to have implied that the total volume of output was also stagnant. Even on the assumption of a constant *per capita* income, the volume of total national income for the part that now constitutes India must have increased over these three decades, as did population, by about one-half. Stagnation—in fact a decline—in the volume of exports against this background means that they fell from about 9 per cent of the output in the 'twenties to only 6 per cent in the 'fifties. The capacity to produce obviously expanded much faster than that to export.

2. It was suggested in my study that the relative stagnation of Indian exports stemmed from a major shift in the commodity structure of world trade and from the limited expansion of imports of agricultural primary products into the industrial countries. The G. A. T. T. and the various regional Commissions of the United Nations have also advanced similar conclusions on the basis of extensive research on the export experience of various countries. Dr. Krueger and Professor Bauer do not seem to agree with the main lines of these analyses and maintain that "the past behaviour of Indian exports can be more than adequately explained by the policies of the Government of India and the Planning Com-

* Reprinted from *Economic Journal*, Vol. LXXI, June 1961.

mission, combined with internal demand and supply factors within India" (Krueger). Those who would expect that after such an announcement there would be an effort at explanation of the past behaviour of Indian exports would be seriously disappointed at what follows.

Dr. Krueger blames the Planning Commission for "neglecting investment in export industries," but one is left wondering how such neglect—even if such neglect can be shown (which it is not) to exist—can now explain the *past* behaviour of exports. As an "additional support" to her thesis, she refers to the Indian balance of payments on private account being in approximate balance and blames the Government "for huge increases in import level for Government purchases without attempting any simultaneous measures of export promotion." Surely *export* stagnation of such long-standing is not to be explained by extremely heavy *imports* on Government account in recent years! As the final proof, she cites the fear of the Planning Commission that the supply of exportable goods, particularly cotton textiles, may fall off considerably with rising domestic demand. That the fears of the Planning Commission were not well-grounded is obvious from the fact that in the last three years cotton textile output barely increased at all owing to the limitations of both domestic and foreign demand and the industry worked with substantial excess capacity. Contemporary concerns seem to have weighed so heavily on Dr. Krueger that the longer-term significance of my findings was totally neglected.

3. In paragraphs 3 and 4 of his note, Professor Bauer carried the ball forward from Dr. Krueger and, besides other charges, deplored my not supplying "information on the share of Indian exports in world exports of particular commodities." This was regarded as crucial because "if this share had increased in a constant or declining total volume of world exports, this would more nearly support his (Patel's) thesis. In fact this information has not been produced. The actual development has been the opposite; there has been an increase in the volume of world exports of these commodities with a decline in India's share." This long quotation would not have been cited were it not a classic example of indifference to evidence.

The needed information could have been easily derived from tables on pp. 495-6 of my study even without the use of a slide-rule. If this simple arithmetical exercise had been undertaken

by Professor Bauer it would have saved him the unfounded assertion concerning decline in India's relative share. Of the four major commodities dealt with in the study, India's share has increased in the case of tea and cotton textiles; whereas jute manufactures form a near-monopoly, and exports of ground-nuts and oil are of marginal significance, amounting to only 2 per cent of total exports.

4. Dr. Krueger regards my estimates of export prospects as "pessimistic." The Indian Government and the scholars in the field would have been grateful indeed if she had presented the major elements on which a non-pessimistic forecast could be built. Instead, she broadly agrees with my estimate of jute exports. She finds "much evidence" for several alternative hypotheses for "demand for tea," although not a word can be found to show whether she expects demand for tea to rise over the next two decades by 15—20 per cent as I had suggested, or more than that. Similarly, even a simple question such as "will the cotton-textile exports rise or fall in the future?" (let alone *precise* indication of by how much) cannot be answered with any degree of certainty from her text. These three commodity groups make up more than one-half of India's exports, and Dr. Krueger has nothing to say about the others. Is this the way to prescribe optimistic perspectives to India?

5. The final section by Dr. Krueger and paragraphs 7-9 by Professor Bauer deal with the implications of my analysis. The role of deficit finance and larger imports by the public sector are for them the villains of the piece for the recent foreign-exchange crisis. In their haste to chase the culprits, it was simply overlooked that my study had nothing to do with explaining the recent foreign-exchange crisis; nor did I once refer to "deficit finance" in the entire text of my study. Professor Bauer advances the general formula for balance in the economy. He appears to think that once you do away with deficit finance, a large measure of the troubles will be over. A theorist's fascination for general formulae has much to commend itself. But can these generalised formulae be used to suggest that if two countries (say, India, with difficulties in raising exports, and Venezuela or Iraq, which do not face such difficulties in petroleum exports) were to finance their investments without resorting to any deficit finance, there would be no serious difference in the growth of their ability to import capital goods to carry out the rising investment programme? The factors that

create external and internal disequilibrium need to be separated. In fact, even if there is no creation of extra money and if the rising investment level is financed by a vigorous mobilization of domestic savings, there is no reason to suggest that there will necessarily be a balance on the external account. In the conditions of internal equilibrium in the context of rising investment (broadly speaking a necessary condition for economic growth in most of the under-developed areas), there will generally be pressures on the external account unless external finance, available through exports, service transactions and capital imports, is also increasing in line with investment. External balance could of course be maintained by reducing the rate of growth of investment and of the economy; but there the *prime objective* would have to be external balance rather than satisfactory economic growth.

6. My analysis of investment and foreign-trade implications related to a specific case: of a country whose exports form a small and falling proportion of national output and whose investments will have to be a *rising proportion* of national output if a satisfactory pace of economic growth is to be maintained. It was in this context that I had tried to elucidate the conditions of external balance and the requirements of economic growth. It was suggested that many under-developed countries are in a not altogether dissimilar situation and the analysis will have relevance to them. Such countries appear to account for a large majority of the population of the economically less-developed countries of the world. Neither of my critics appear to have appreciated the need for an analysis of particular situations. But then, what can one do with a general statement if the whole is one vast exception ?

EXPORT STRATEGY FOR THE NEXT DECADE*

THE main trends in exports from India are fairly well-known. However, they may be briefly summarized so as to provide a proper background for the line of thinking suggested in these notes¹.

As a rough and ready calculation, India's share in world exports has fallen from over 10 per cent to approximately 7.8 per cent from the beginning to the end of the nineteenth century. The decline has continued throughout the twentieth century—from 4 per cent in the twenties to 3 per cent in the thirties, 2 per cent in the early fifties and to only about 1 per cent in recent years. Similarly there was a fall in exports as a proportion of national income : from about 16 per cent to 10 per cent between the end of the last century to the early thirties of this; from 6.7 per cent in the early post-war years to under 5 per cent by the end of the Second Five Year Plan.

PERFORMANCE OF THE LAST DECADE

(a) These trends have continued in the past decade of planning in India. This decade witnessed perhaps the most rapid expansion in world trade (annual average rate of about 7 per cent). But the value of India's exports averaged around Rs. 600 crores—higher during the Korean boom, lower in the period of adjustment and somewhat higher, but fluctuating in the last few years. A three-year moving average indicates no marked trend. Near-stagnation against a doubling of world trade—this is the setting against which the export prospects for India must be outlined.

(b) An analysis of the changes in the direction of exports (see Table 1) during the decade suggests pointers which have great relevance in developing a policy for expansion.

(i) The current value of exports to private enterprise indus-

* Reprinted from *The Economic Weekly* (Special Number), July 1961.

¹ For a more detailed discussion, see the author's "Export Prospects and Economic Growth : India" in the *Economic Journal*, September 1959.

trial countries (excluding Japan) increased by 15 per cent, while their imports from the rest of the world more than doubled. India was mainly by-passed as a source of supply in their expanding imports.

(ii) The value of exports to the pre-industrial countries fell by Rs. 60 crores or about 30 per cent. This suggests that the small footholds India had established in the early postwar years were reduced as the industrial countries regained these markets.

(iii) India's trade relations with the traditional partners—the private enterprise industrial countries—have thus acted as a double-edged sword. Exports to them did not share in their expanding imports and their exports cut into ours in third markets. Net result : world trade doubled, Indian exports stagnated.

(iv) In the midst of this overall stagnation there was a beginn-

TABLE 1

CHANGES IN THE DIRECTION OF EXPORTS FROM INDIA

Direction				Change					
	1950	1956	1959	1950	1928	1938	1950	1956	1959
				-1959					
	<i>In Rs. crores</i>				<i>Share in per cent</i>				
1. Private enterprise economies	555	565	565	10	98	97	99	94	91
a. Pre-industrial countries	210	145	150	-60	21	22	37	24	29
b. Industrial countries	345	420	415	70	77	75	62	70	67
All others	335	390	380	45	67	66	60	65	61
Japan	10	30	35	25	10	9	2	5	6
2. Centrally planned economies	5	35	60	55	2	3	1	6	9
Total exports	560	600	625	65	100	100	100	100	100

NOTE : The data on values are rough estimates and have been rounded to the nearest 5 or 10.

ing of an important shift in direction—more trade with Japan² and the centrally planned economies. During this decade exports to these two areas increased from Rs. 12-15 to Rs 95 crores. Without this redirection, the current value of exports at the end of the Second Plan in fact would have been slightly lower than at the beginning of the First. Now these "dynamic directions" account for 15 per cent of our exports as against less than 3 per cent in 1949-1950.

THE PROSPECTS IN THE DRAFT OUTLINE

The Draft Outline of the Third Plan estimated total exports to rise from approximately Rs 640 crores in 1960-1961 to Rs. 740 crores (derived by straight-line projection) by the end of the Plan, or by 16 per cent. A more recent paper, based on the studies of six commodities (iron ore, jute manufactures, tea, edible vegetable oils, sugar and engineering and other products) suggests the basis for revising the estimate of the Draft Outline upward by some 3-4 per cent. Exports will still continue to be a falling proportion of national output.

Some observations may be made regarding the suggested outlook for tea and edible oils—two of the commodity groups studied in detail by the Working Group.

Tea. The Working Group has suggested an export target of 610 million lbs by 1965-1966 against an annual average of 478 million lbs for 1958-1959, or an increase of over 130 million lbs. An adequate evaluation of the prospects of attaining this target would require detailed analysis of the main directions to which these additional exports are estimated to go and the extent of possible competition.

Since 1934-1938, world exports of tea have increased by only one-quarter, or about 1 per cent per year—that is, less than the growth of world population and much less than that of per capita incomes. The world trade in tea may be assumed for the next five years to expand by 2 per cent per year (a rather optimistic and not a conservative assumption); even then this would lead to a rise of no more than 120 million lbs. But the target of additional

² In the twenties and the thirties, nearly one-tenth of Indian (as constituted then) exports went to Japan (*see* Table 1).

exports set for India alone seems to be higher than the probable rise in world exports. Surely it is not expected that our competitors, who account for over 60 per cent of world exports, would be considerate enough to take a holiday and let the next five years be exclusively the Indian Tea Quinquennium. If they do not oblige us and we succeed in making the additional quantities available for export, the consequent price fall (which cannot be simply assumed away) would seriously depress the level of export proceeds. The highly doubtful gains in the volume of exports will then perhaps be more than offset by a fall in the unit value. The recent experience of the producers of the sister-beverage (coffee) illustrates this point.

Edible Oils. The export target suggested by the Working Group is about 250,000 tons of oil per year. India accounted for roughly one-third of about 1 million tons (converted to oil equivalent) of groundnut oil exports in pre-war years. In post-war years, world exports of groundnut oil and products have not risen above the level of the thirties and the share of India has fluctuated around one-tenth of the total—much below this level during the last five years. Despite the fact that exports from India have virtually ceased since 1956, the world market price for groundnuts has not only not shown any increase but has in fact receded somewhat.

The target for oil exports of 250,000 tons in 1965-1966 implies that India would make a bid to reverse the decline in the share in world markets and almost recapture in a matter of five years our prewar share. The target of additional supplies from India would require that our competitors, as in the case of tea, would have to be content with stagnation, or even a possible decline in their exports, although they have now a price advantage. Can one reasonably assume such co-operation on their part? Furthermore, as in tea, any success we might have in raising the volume of exports would tend to nullify to a considerable extent the expected rise in export proceeds through a fall in unit prices.

An expansion of exports at least in line with projected income growth is an essential element for assuring that the expected income rise will in fact materialize. Such a growth of exports requires a complete reversal of the stagnation which has become so firmly and deeply entrenched over so long a period of time. It should be obvious that a reversal of this nature can hardly be brought about

by a merely statistical "operation optimism".

EXPORT STRATEGY FOR THE NEXT DECADE

Before coming to a discussion of the main lines of export strategy for the next decade, it may be helpful to point to the experience of some other countries which in their past history faced and successfully overcame similar difficulties. The examples that readily come to mind are these :

(a) Private enterprise economies : Japan, which displayed an energetic export drive in the inter-war period and during the fifties (based on a major shift of direction of exports in the earlier period and in the commodity structure in the later one) ; also Italy in the fifties.

(b) Centrally planned economies : China in the fifties, showing a fundamental shift in the direction but only a minor shift in the commodity structure of exports ; most of the Eastern European countries which combined decisive changes both in the direction and composition of exports. Another successful example, and perhaps much more relevant to Indian conditions, is provided by the Yugoslav export drive in the fifties where both the direction and commodity structure of exports underwent a pronounced change. A close analysis of the major factors responsible for the success of the export drives in these countries may provide clues which can be helpful in formulating an adequate export strategy for India.

What are the main elements on which an adequate policy for export expansion in the next decade can be based? It would require more than reckless audacity to suggest any easy answers. Innocent statistical exercises, which are based on an analysis of export and output experience of a few commodities over the last few years only and often overlooking the long-term overall world export setting, could be easily misleading. And yet, the main elements on which such a policy can be based are not so complicated to discern.

They are a combination of a radical shift in both the direction and composition of exports, the former constituting the main basis of expansion in the early years of the Third Plan and the latter for a longer-term solution of the export impasse. The manner in which these two threads would be interwoven in actual implementation can only be indicated after a detailed analysis of the degree of

dynamism existing in each major commodity and market.³

This dynamism may be roughly characterized by the rate of growth of exports : (a) stagnant or falling, (b) expanding by about 5 per cent per year, and (c) rising very rapidly. In the absence of such a study, a tentative beginning may be made by suggesting the possible lines along which answers may be found. An analysis of the main directions of India's exports (see Table 1) seems to provide the most fruitful point of departure.

In recent years over 90 per cent of India's exports were directed to private enterprise economies, two-thirds to industrial economies, and one-fourth to pre-industrial countries. A little under one-tenth went to the centrally planned economies. The possible trends in India's exports for these major markets are discussed below.

(a) Private Enterprise Industrial Countries (Excluding Japan)

Over the last few decades the essence of India's export experience in this area has been a virtual stagnation. It is not because these markets were stagnant. Since the late twenties the current value of imports into these countries has more than trebled; but their imports from India valued even at current prices have remained almost unchanged. Efforts to promote exports can no doubt be increased. More trade missions can be sent and exhibitions and fairs be held. The urgent need for expanding trade can be more eloquently expressed. Better studies of these markets can be undertaken. New staff, well-versed in marketing techniques and efficient with ready smiles, can be hired. The capriciousness of variations in demand and unit prices may be more precisely interpreted by deriving some correlations. Intriguing suggestions on variable exchange rates can be explored. The scale of sales, excise and export taxes and the so-called "restrictive" export practices can be revised. With all this done and perhaps more, how will our traditional exports fare? The answer, plainly stated, would appear to be : more or less as they did over the past four decades. A little rise, often offset by a little fall, and if we are more fortunate stumbling to a level some

³Such a study of the last ten years' experience would indeed be a great help. In this as well as in other sectors of the economy, all sorts of calculations are being made, while the live operational experience of this economy over the last decade of economic planning is still patiently waiting to yield a rich harvest to a devoted investigator.

10-20 per cent higher by the end of this decade. Any suggestion of a different, that is a more cheerful, order of expansion would have to be much more documented to be credible.

SELLING TO WRONG PLACES

India's export experience in this area may be simply summarized : we have been selling wrong things to the wrong places. Offering more of the same things to the same markets which no longer want more of them can hardly raise our export proceeds. Formation of the Common Market and other trading blocks will only make the task more complicated. If with eager enthusiasm we were to push in this blind alley by making available a larger quantity of most of the traditional export products, there would only be a rebound—through sharply reduced prices—to snipe us in the back. With all the world experience before us, we cannot then reasonably put up a face of the innocently injured.

This unwelcome reality is often recognized in words ("all this is known"), but finds only a feeble expression in policy formulation. It would indeed be illuminating to determine the total effort (measured in terms of money, staff employed and the amount of general intellectual attention devoted) put into trade expansion in each of the three major regions shown in Table 1. One need not be surprised at all if an inverse correlation is found to exist between the input of efforts and increments in exports in these areas. This would suggest that there is a significant gap between acceptance of certain ideas in principle and their reflection in channels of policy implementation.

On the basis of the considerations suggested above and despite efforts at present envisaged to promote export to the private enterprise industrial countries (excluding Japan), it does not seem likely that they would rise from Rs. 380 crores in 1959-1960 to more than Rs. 420-440 crores in 1965-1966 and Rs. 460-480 crores in 1970-1971.

(b) *Pre-Industrial Countries*

In these markets, the recovery of the industrial countries and of their exports has cut sharply into the little beach-heads we had gained in the early post-war years. This decline in the absolute

value, and even more in the relative share, of India's exports took place in the early fifties. In these years the world export markets were still dominated by scarcities of supplies and export competition was much less intense than at present.

Like India, most of these countries are exporters of primary products. They have similarly been facing difficulties in raising their exports proceeds. These are developing countries and as their policies of raising investment take clearer shape and attain firmer execution, they will increasingly face critical shortages of foreign exchange. Their import structure will also show a marked change in favour of capital goods. The imports of traditional or simpler forms, of manufactured consumer goods such as textiles, etc. would have to be restricted and many of them domestically produced.

In these markets, the broad export strategy will have to be: at least to hold (and if possible to expand) the present level of our traditional exports and to pursue aggressive export policies in the "new" (engineering in general and capital goods in particular) goods. Judged by the canons of liberal trade policies, India has been a great sinner on the import side, but very virtuous on the export side. It can hardly be imagined that in an intensely competitive field the appeal of our independent foreign policy would be an adequate offset against all the advantages enjoyed by the established. Nor should it be expected that the odds faced by the "newcomer" would be overcome if the export drive was to be carried out by hundreds of small traders, whose valuation of foreign exchange is guided solely by its equivalence in domestic currency and whose energies are activated proportionately to possibilities of profit. In view of the usual abundance of hopes and indifferent performance in the past, it seems essential that the export trade in the new commodities be handled by a centralized State Trading Corporation which can make not only agreements but many other arrangements whereby the exports of these new items is made competitive.

The Dynamic Commodities

The new or the "dynamic" commodities now account for only 1-2 per cent of India's exports, or about Rs. 10 crores. An energetic export drive, conducted by a centralized agency, and combining various elements of export subsidization (Yugoslav experience in this

field has a lot to offer), might lead to an expansion of these exports from about Rs. 10 crores to Rs. 50 crores by 1965-1966 and to Rs. 100-200 crores by 1970-1971. The export drive will have obviously to be coordinated with the possibilities of making these goods available for export. If these orders of magnitude are attained India would have made a significant change in the commodity composition of exports—the dynamic commodities would then account for 15-25 per cent of total exports towards the end of the decade. We can then expect to benefit increasingly from the main lines of expansion in international trade from the seventies.

Summarizing the indications shown above, the trade potential may be estimated as Rs. 190-210 crores by 1965-1966 and Rs. 250-350 crores by 1970-1971 against Rs. 150 crores in 1959-1960. It need not be emphasized that these potential gains can only be reached if India's export drive is made more vigorous and is organized more efficiently along unconventional lines.

(c) *The Dynamic Directions*

As shown in Table 1, these directions alone have been responsible for more than the entire amount of expansion in India's total export earnings during the last decade. Exports in all other places have in fact fallen. Without a detailed study of the individual commodities that are exported to the dynamic directions, it is indeed difficult to indicate the potential expansion of exports to these destinations. In a rough and ready way—but only that and no more—a broad order of magnitudes may be suggested so that it can be judged whether a detailed study might be considered worth undertaking.

Japan. Over the last decade India's exports to Japan have risen from Rs. 7-8 crores to about Rs. 35 crores, or approximately five-fold. Fairly clear ideas are now available about the potential expansion of steel output in Japan during the next ten years. India can easily become the major supplier of Japan's expanding iron ore imports. Some estimates can also be made for exports of short-staple raw cotton. Moreover, the Japanese economy is expected to keep on growing at 8-9 per cent per year for the next ten years. In such a rapidly expanding market it should be possible for India to raise the exports of many other commodities which at present

play only an insignificant role. On the basis of these considerations the exports to Japan can be raised to about Rs. 60-75 crores by the end of the Third Plan and to about Rs. 90-110 crores by the end of the Fourth. The rate of expansion in the latter period would be lower than in the former, but not very different from the estimated expansion of industrial output and presumably total imports in Japan.

Most of the expansion to Japan is concentrated in two commodities : iron ore and raw cotton. Since the destination is only one country the formulation and the execution of the policies needed to attain this order of magnitude would be relatively easier to accomplish here than elsewhere. Even with this expansion, the share of Japan in India's total exports by 1970 would not be much different from that in the inter-war period (*see* Tables 1 and 2).

Centrally Planned Economies. India's trade with these economies was almost stagnant throughout the inter-war and the early post-war periods. But in contrast to our experience with the other traditional partners (industrial countries in the West), this stagnation cannot be attributed to a saturation in demand for the commodities that India traditionally exports. The reasons were two-fold. Firstly, the trade policies in these countries centred on importing capital and intermediate goods and restricting very severely all other forms of imports. Secondly, there was nearly a total absence of trade and other contacts between them and India.

The possibilities of export expansion to these markets do not seem to be restricted, as with our traditional trade partners, by any lack of need on their part for the products which India has been exporting. The growth of these economies over the last few decades has proceeded at a rapid pace without recourse to products that India traditionally exports to the western countries. It may well be that these materials, so far not available or only inadequately available in their markets, would command a marked cost advantage.⁴ The barriers against enlarged trade are non-economic in character. With the steady removal of the two factors impeding the growth of such trade (and that is the general trend), exports of the traditional commodities in this direction can be expanded very rapidly—at a rate considerably higher than the

⁴ A detailed and careful study of these markets would, it seems, provide a very valuable basis for formulating the policies for export expansion.

average annual rise in imports (about 10 per cent)—and immediately without waiting for a thorough diversification of the commodity structure of exports from India.

"Soft" Goods and "Hard" Goods

Moreover, there are some other factors that would now favour the expansion of Indian exports to these economies. Due to the rapid expansion of the capital goods industries, these countries are in a position to supply India with her pressing requirements of imported machinery and equipment. In recent years, more attention has been devoted to considerations of cost, benefits from international specialization and to increasing rapidly the supplies of many consumer goods. As a result, India can also expect to increase the exports of many consumer goods for which there exist large unsatisfied demands. A proper approach based on long-term exchanges can relieve these economies of their "soft" goods. Some of their "soft" goods (for instance, machine tools of a standard kind, oil-drilling equipment, crude oil, etc.) would indeed be "hard" goods for India. Thus the trade flows in both directions have the basis for expanding rapidly in a complementary manner—that is, the exports of each financing the imports of the other. Some of the very serious payment difficulties which India has faced in her trade with the major traditional partners in the west would not arise in increasing trade flows with the centrally planned economies.

The experience of the last decade would seem to support this line of reasoning. The value of exports in this direction has gone up from Rs. 5 crores in the early fifties to about Rs. 60 crores in recent years—a twelve-fold increase, which is nearly equal to the entire expansion in India's total exports in this period. The bilateral agreements, recently concluded, suggest that the exports in this direction may be doubled by the middle of the Third Plan. Assuming an annual rise of 10-12 per cent for the remaining period of the Third Plan, it can be suggested that the total value may be about Rs. 150-160 crores. After that period, at a rate of growth of 10 per cent—roughly the probable rate of expansion in their overall imports—the working order of export estimate would be Rs. 210-240 by 1970-1971. A large sum indeed, but considering the reasoning above, not particularly an audacious expectation !

Relative Certainty

An additional advantage of trade flow in this direction would be its relative certainty. Once the agreements have been concluded and the necessary preparations to supply the commodities made, one can calculate fairly accurately the export proceeds that would be received during the next few years. India's export earnings, like those of the other primary producing countries, have fluctuated wildly and erratically over the years—the outlook each year being just as uncertain as in crop output. In both the crucial sectors of the Indian economy—agriculture and exports—precise forecasting and control is very severely limited. The rapid expansion of exports to the centrally planned economies would introduce a much-needed built-in stabilizer in the export trade. It could play a role not altogether dissimilar from that of irrigation in agriculture, if followed with similar vision and vigour.

The broad order of exports that may be envisaged for the dynamic directions is shown below :

<i>Dynamic Directions</i>	1959-60	1965-66	1970-71
		<i>(Rs. crores)</i>	
Japan	35	60-75	90-110
Centrally planned economies	60	150-160	210-240
	95	210-235	300-350

The increase that can be reasonably expected by the end of the Third Plan could amount to Rs. 115-140 crores. Its importance is suggested by the fact that even if the trade in all other destinations simply stagnated (as may well be the case), this sector alone would assure a 3-4 per cent annual rate of growth in total exports—or 18-22 per cent by 1965. Hence the imperative need to shift the focus of India's export promotion efforts.

TABLE 2
THE PROSPECTIVE PATTERN OF INDIA'S EXPORTS : 1960-1970

<i>Direction</i>	<i>Annual Exports</i>			<i>Change Between</i>		<i>Approximate share in Exports</i>		
	1959-1960	1965-1966	1970-1971	1959-1965	1965-1970	1959	1965	1970
	<i>(Rs. crores)</i>			<i>(Rs. crores)</i>		<i>(Percentages)</i>		
a. Private enterprise	350	420-440	460-480	40-60	40	61	50	43
Industrial countries								
b. Pre-industrial	150	190-210	250-350	40-60	60-140	24	24	28
countries								
c. Dynamic Directions	95	210-235	300-350	115-140	90-115	15	26	29
Japan	35	60-75	90-110	25-40	30-35	6	8	9
Centrally planned economies	60	150-160	210-240	90-100	60-80	9	18	20
Total	625	820-885	1010-1180	195-260	190-295	100	100	100

SUMMARY AND CONCLUSIONS

The line of reasoning in this study suggests the following orders of magnitude of expansion of exports in various directions (see Table 2).

Presented this way, the prospects look tantalizing! The century and a half long fall in India's exports as a share of world exports and of India's national output would be reversed. A significant measure of diversification of direction (and necessarily of composition) will be attained.

The outline of the projected pattern may be dismissed by the sceptics as another statistical exercise in "Operation Optimism". Before doing so, however, it may be worth while to work out in concrete details the "logistics" involved—estimating the volume of the commodities that are likely to be exported in each of the major

direction,⁵ the measures leading to the necessary reorganization of the export drive, the steps necessary to bring about the required rise in output and export availabilities. In the process, some of the flaws implicit in the reasoning of this study may be discovered ; but it is also possible that other more promising avenues may be opened. This would require the realization in policy that India is holding unburied the dead dream of increasing the traditional exports to the traditional partners.

In brief, it is suggested that the main line of the export strategy for the next decade should consist of these major steps—in order of their importance and priority.

1. Maximum effort in the dynamic directions, mainly based on traditional items in the early phase and extending to new items as the trade flows increase. Even if everything else failed, success in this would assure a rise in total exports by one-fifth to one-quarter in the next five years.

2. Serious drive for increasing exports of the "new" products to the pre-industrial countries. The degree of success will depend on the unorthodox methods pursued and the vigour of their execution.

3. Maintaining, and if possible expanding somewhat, the level of traditional exports to the traditional trade partners while placing major reliance (for expanding exports) on the development of exports of "new" commodities. But not putting too many resources or hopes in this so that a probable disappointment does not lead to too many bitter tears.

⁵ The relevance of the various commodity studies can be meaningfully assessed only when broken down by major direction.

PART IV

A CENTURY OF ECONOMIC EXPANSION

RATES OF INDUSTRIAL GROWTH IN THE LAST CENTURY, 1860-1958*

NEARLY two centuries have elapsed since the start of the Industrial Revolution. But in the first of these two centuries the revolution was essentially an experimental and small-scale affair. Although many inventions had been made by the middle of the nineteenth century, the adoption of advanced technique was limited to Great Britain and even there, except for the textile industry, only on a small scale. The world of the first quarter of the nineteenth century had little experience with the steam locomotive and the railways which were to revolutionize transportation; even by 1850, the total length of the railway network in the three most developed countries—the United Kingdom, France and Germany—was not quite 20,000 kilometres, i.e. less than a sixth of the network that these countries had by the end of the century. The output of pig iron in the whole world was only 4.6 million tons in 1850, half of which was in Great Britain. The technique of producing steel had hardly gone beyond the handicraft stage. Even the most advanced countries in the world were still in the last days of the iron age. Cast iron could be used in rails, pillars, bridges, engine cylinders and even wheels, but it had its limits; it was not suited for the working parts of engines and machines. The steel age was about to begin. The Bessemer converter was invented in 1856 and even with the advance made by the Martin-Siemens process (1864-67) the total output of steel in the world was no more than 700,000 tons in 1870, or less than one-half of India's output in 1958.

Hence only the last hundred years can be regarded as a century of the machine age and industrial expansion. This study attempts to measure the scale and the speed of this growth and the relationship between the major sectors of industrial output in various countries; it also sets out to indicate the rates of growth at which the gaps in the volume of industrial output among the major industrial countries were closed in the past in order to suggest the

* Reprinted from *Economic Development and Cultural Change*, Vol. IX, No 3, April 1961.

rates of growth that may be necessary to close the present gap between the industrial and the pre-industrial countries.

The limitations of index number series stretching over a hundred years should not be overlooked. The availability and accuracy of the figures cannot be expected to be uniform over so long a period of such rapid change. Moreover, since they were prepared in part by different individuals or institutions, linking the various series introduces a number of distortions in the continuity. In consequence, and in order to avoid repeating words of caution every time these figures are mentioned, it should be emphasized right at the beginning that they represent no more than an order of magnitude—adequate for indicating the broad sweep of movement over the century, but not precise enough to measure accurately each succeeding stage.

I. THE RATES OF GROWTH OF INDUSTRIAL OUTPUT

Over the last century industrial output¹ in the world as a whole rose some thirty-to-forty fold (*see Table 1*). World population, on the other hand, slightly more than doubled. Hence industrial output per capita is now some 15 to 20 times higher than a hundred years ago. The absolute growth in per capita industrial output in the last 100 years was thus a number of times higher than that attained in the entire preceding period of man's existence; and the per capita rate of growth (2.6 per cent year in contrast to less than 0.1 per cent in preceding centuries) was much higher still.²

Considerable interest attaches to an analysis of the rates of growth of industrial output for the world as a whole and for the major industrial countries. As can be seen from Table 2, world industrial output has expanded by about 3.6 percent per year over these hundred years. Whatever the period chosen, the rate has varied little, except during the inter-war period (1918-1938) of stagnation and the great depression, when the rate fell to 2.4 per cent per annum. But these years of inhibited growth seem to have piled up such a vast backlog of demand for capital and consumer goods that under its pressure the recent post-war decade was a period of

¹ Throughout the study, industrial output refers to the production in factories and excludes that of the handicraft and cottage industries sector.

² Keynes, J. M., *Essays in Persuasion* (London, 1931), p. 360.

very rapid industrial growth. Consequently, if the whole period from 1913 to 1958 is considered, the rate of 3.5 per cent per year is not substantially different from the rate of 3.6 per cent per year for the century as a whole.

The relative constancy of the rate of growth of industrial output for the world as a whole does not imply that all countries expanded their output at the same rate. The factors responsible for different rates of economic growth are complex and beyond the scope of this study. Broadly speaking, industrial output grew rather slowly in the countries where industrialization started earlier. Thus, for instance, the lowest growth rates are found in the United Kingdom and France. On the other hand, the rate of growth of industrial output attained by each new entrant in the field of industrialization has tended to be successively higher. As can be seen in Table 2, where the countries are arranged from left to right in the approximate chronological order in which they began industrializing, this trend is maintained in the period before as well as after the first world war.

For the period of 33 years (1880 to 1913) the rate of growth of industrial output rises from about 2 per cent per year in the United Kingdom, to 3 per cent for France, 5 per cent for Germany, the United States and Italy, and to about 6 per cent for Sweden and Russia. For the 45-year period from 1913 to 1958 the rates rise from about 2 per cent for the United Kingdom and France to 2.4 per cent for Germany, over 3 per cent for the United States, Italy and Sweden, 5.4 per cent for Japan and over 8 per cent for the U.S.S.R.—and in these crowded 45 years there were two world wars and an international depression! The list of countries is not, of course, complete; but it does include nearly all the major countries, which accounted throughout the period for eighty to ninety per cent of the world's industrial output.

One explanation for this rise in the rate of industrial growth for each successive new entrant into the industrial field might be the fact that the volume of its industrial output in the initial stage was so small that relatively limited additions to it would appear large in percentage terms. But this seems an inadequate explanation, for two reasons. First, the high rates would continue for the initial years only; they would not be almost consistently maintained, as they were, for a rather long period. Second, it would then be reasonable to expect that in some early phase of industrial

TABLE 1

GROWTH OF INDUSTRIAL OUTPUT AND POPULATION IN WORLD AND SELECTED COUNTRIES, 1860-1958

Period	World ^a	United Kingdom	France	Germany ^b	United States	Italy	Sweden	Japan	USSR
<i>Index numbers of industrial output, 1953-100</i>									
1890	4	15	15	6	2	...	...	...	...
1870	5	19	20	8	3	5	2	...	(1)
1880	8	23	24	10	5	7	3	...	(1)
1890	12	28	31	18	8	12	7	...	1
1900	16	33	40	29	12	17	16	10 ^c	3
1910	24	36	56	42	20	30	23	12	4
1913	28	43	66	51	23	35	26	16	5
1920	26	43	45	30	30	32	25	28	1
1925-29	38	45	80	53	39	50	33	44	5
1932	30	45	67	35	24	41	34	49	12
1938	51	64	74	77	36	61	59	88	31
1950	...	94	87	72	84	79	97	55	69
1953	100	100	100	100	100	100	100	100	100
1958	133	114	150	151	102	142	118	168	172
1959	...	120	159	162	115	158	121	208	191
<i>Population in millions</i>									
1850	1200	28	36	36	23	24	3.5	...	60
1900	1600	42	39	56	76	33	5.1	47	111
1950	2400	51	42	(50)	152	47	7.0	83	...
1958	2800	52	45	(54)	174	49	7.4	92	(206)

SOURCES :

Industrial output : 1860 from Wageführ, Rolf, *Die Industriegewirtschaft, Entwicklungstendenzen der deutschen und internationalen Industrieproduktion 1860 bis 1932*, Institut für Konjunkturforschung (Berlin, 1932) ; 1870-1900 from League of Nations, *Industrialization and Foreign Trade* (Geneva, 1945), except for Sweden and Russia up to 1910, Japan up to 1932 and the world up to 1938 , 1910 to recent years from O.E.E.C., *Industrial Statistics 1900-1957* (Paris, 1958), and United Nations, *Statistical Yearbook and Monthly Bulletin of Statistics* ; also United States, *Historical Statistics : 1789-1945*, U.S.S.R., *Narodnoye Khozyaistvo* (Moscow, 1956) ; Svennilson, I., *Growth and Stagnation in the European Economy* (Geneva, 1954) and Kotkovsky, Y., *International Af-*

^a Including U.S.S.R., eastern Europe and China.^b Western Germany only for post-war years.^c 1905.

TABLE 2

ANNUAL RATES OF GROWTH IN INDUSTRIAL OUTPUT IN SELECTED COUNTRIES,
1860-1958, PER CENT (COMPOUNDED)

Period	World ^a	United Kingdom	France	Germany [†]	United States	Italy	Sweden	Japan	USSR
1860-1880	3.2	2.4	2.4	2.7	4.3	...	...	...	...
1880-1900	4.0	1.7	2.4	5.3	4.5	4.5	8.1	...	6.4
1900-1913	4.2	2.2	3.7	4.4	5.2	5.6	3.5	3.8 [*]	4.8
1913 to 1925-1929	2.2	0.3	1.4	0.3	3.7	2.6	1.6	7.5	1.1
1925-29 to 1938	2.8	3.1	-0.7	3.5	-0.9	1.7	5.4	6.5	17.2
1913-1938	2.4	1.4	0.4	1.7	1.7	2.2	3.3	7.1	7.8
1938-1958	4.9	2.9	3.6	3.5	5.3	4.3	3.5	3.4	8.9
1860-1913	3.7	2.1	2.8	4.1	4.6	...	...	...	...
1880-1913	4.1	1.9	3.1	4.9	4.8	4.9	6.3	...	5.7
1880-1958	3.8	2.1	2.3	3.5	3.9	3.9	4.6	...	7.2
1900-1958	3.7	2.2	2.3	2.9	3.7	3.7	3.5	5.0 [*]	7.5
1913-1958	3.5	2.2	1.9	2.4	3.3	3.1	3.4	5.4 [*]	8.3
1925-29 to 1958	4.1	3.0	2.1	3.5	3.1	3.4	4.2	4.4	11.8

SOURCES : Same as Table 1.

fairs, No.2 (1959). For population, Woytinsky, W.S., and Woytinsky, E. S., *World Population and Production* (New York, 1953).

Note on Methods :

World index of industrial output (excluding mining up to 1938 and handicraft production throughout the period) based on League of Nations up to 1938 ; figures based on the "net value added" concept, except for the U.S.S.R. where they refer to the gross value of output and may over-estimate the trend between 1925-29 and 1938 ; for post-war years, United Nations index linked to these and adjusted, in a very rough and ready way, for the inclusion of the output in the U.S.S.R., eastern Europe and China, thus : 1953 adjusted world-weights were derived by taking U.S.S.R. output as one-third of that of the United States, eastern European as one-half of U.S.S.R. and Chinese output as one and a half to two times that of India ; 1925-29 index (base period of League of Nations index) linked with 1953 index by deflating the weights of U.S. industrial output in the world total for 1925-29 and 1953 by the movement of the U.S. index in this period.

^a Including U. S. S. R., eastern Europe and China.

[†] Western Germany only for post-World War II years.

^{*} 1905-58.

^{*} 1938 level reached only in 1952. If these 14 years are excluded, the rate would be 8.2 per cent.

development in the advanced industrial countries the rate of growth was also very high and that it declined subsequently as the volume of their industrial output rose. But the available evidence does not seem to support this. In the early stage of industrial expansion in Great Britain—the forty years (1820 to 1860) following the Napoleonic wars—the rate of growth of industrial output was a little over 3 per cent per year, which was very close to the rate of 3 per cent for the 31 years (1925-29 to 1958) following the first World War. Examination of the long-term development suggests that there was a fair amount of almost monotonous continuation of nearly the same per capita rate of growth in the United Kingdom, France, Germany and the United States ; disregarding a few years of slow growth—due to either a war or a depression—even the older industrial countries do not seem to have suffered from what Keynes called “the rheumatics of old age.” Although rates of growth after the first World War were in most countries somewhat lower than those before it, with the notable exception of Japan and the U.S.S.R., this is—as shown below—almost entirely explained by changes in the rate of population growth—not to speak of the influence of the years spent in war and the depression.

Perhaps a more valid explanation of the progressively higher rates of growth of industrial output for each new entrant to the process of industrialization lies in the opportunity of benefiting from accumulated technological advance—a factor which was so emphatically stressed by Veblen. It is reasonable to suppose that the rate of growth in the United Kingdom and France was determined in the main by the pace of technological advance. These countries could only apply new techniques as they evolved; whereas for each new entrant there was already an accumulated body of technological progress to assimilate. The newly industrializing countries did not have to follow religiously the slow and necessarily step-by-step developments in techniques common to the countries which set out early on the road to industrialization. Nor did they have to bear the costs and delays of evolving and industrially trying out the new techniques: the countries which were ahead continued doing most of this. The later a country entered the field of industrialization, the larger was the fund of technological advance upon which it could draw, and hence the faster its possible rate of growth. So long as the technological gap between the pioneering countries

and the newcomers was not bridged, the high rate of growth in the latter could be maintained.

It would follow that, in technological terms, the rates of industrial growth could not have been much higher in the pioneering countries. For the same reason—and again technologically speaking—the rates of growth in the countries just starting industrialization in the second half of the twentieth century can be higher (depending upon the ability to assimilate and spread advanced technology) than the rates attained by the countries industrializing in the first half of the twentieth century, and substantially higher than the rate of growth attained by countries which began industrializing earlier.

As to growth in per capita output—during the last century, population increased by less than 1 per cent per year in the older industrial countries (and much less in France) or at about the same rate as the population of the world as a whole. The increase was in general faster in the first half than in the second half of the century. Only in the United States, where Europeans migrated in large numbers in this period, was the rate of growth of population for the century as a whole as high as about 2 per cent per year. As in the other countries, in the United States the rate of growth during the first half of this period—nearly 3 per cent per year—was more than twice as high as that during the second period.

As shown in Table 2, the rate of growth of industrial output in the older industrial countries in the period 1913 to 1958 was somewhat lower than in the period 1860 to 1913. This decline has often been attributed to two causes: the expectation of a slowing down in the rate of growth as the industrial base became larger; and the disturbances caused by the two wars and the great depression. However, when the rate of growth of industrial output is deflated by changes in the rate of population growth, there is relatively little difference in the per capita annual rate of growth for both the periods, before and after the first World War. This is strikingly borne out by the experience in the United States, where the growth of industrial output was 4.6 per cent in the period of 1860-1913 and 3.3 per cent in the period 1913 to 1958; but the rate of growth of population was about 3 per cent a year in the first period and 1.3 per cent in the second period. Per capita industrial output thus grew at roughly the same rate—in fact slightly faster in the second period—despite the fact that the volume of output in

the period after 1913 was substantially higher than in 1860 and that there was a decade of depression.¹⁰ Analysis of per capita rates of growth of industrial output in the United Kingdom, Germany and France shows that in each country the rate was not significantly different in either of the two periods.

Viewed over this long period, the differences in the rates of growth of population and industrial output bring out forcibly the immense power of compound growth at higher rates. The differences in rates of growth of 1 to 2 per cent (population) and 3 to 7 or more per cent (industrial output) are indeed large. But they may not appear spectacular. Only when these rates are compounded over a long period—say a century—can one see the full impact of the staggering force of compound growth at higher rates. Over a century, a given quantity (population or output) will increase 2.7 times at 1 per cent, 7.2 times at 2 per cent, 19 times at 3 per cent, 50 times at 4 per cent, and 130 times at 5 per cent. The extent of the growth during a hundred years at still higher rates is almost incredible: 340 times at 6 per cent, 870 times at 7 per cent, and—just to underline the spectacular effect of high compound rates—nearly 14,000 times at 10 per cent in a century. If the rate of growth of industrial output is some 2 to 4 per cent higher than population growth, the rise in per capita output over a century would be much higher than might be suggested by the rather modest difference in the rates of growth.

II. THE PATTERN OF INDUSTRIAL GROWTH

In recent years a number of countries have initiated programmes and plans of economic development in which special attention is paid to industrial growth. For them, decisions concerning the patterns of industrial development have assumed great practical importance. In view of the wide difference in the endowment of natural resources in various countries, a study of the development of specific industries in the industrial countries is not likely to furnish a useful guide to determining investment priorities in the

¹⁰ A similar conclusion for the growth of total per capita output for the last 70 years in the United States was advanced by Raymond Goldsmith. See United States Congress, Joint Economic Committee, *Employment, Growth, and Income Levels, Hearings* (86th Congress, 1st Session), part II (Washington, So long, 1959), pp. 230 ff.

TABLE 3

DECLINE IN THE SHARE OF CONSUMER GOODS IN INDUSTRIAL OUTPUT IN SELECTED COUNTRIES

Country	Year and share in percentages				
	1871	1901	1924	...	1946
Great Britain	52	41	40	...	31
	1861-65	1896	1928	...	1952
France	65	44	35	...	34
	...	1895	1925	1936	1951
Germany	...	45	37	25	23
	1880	1900	1927	...	1947
United States	44	34	32	...	30
	1846	1896	1926	1936-38	...
Belgium	80	49	37	36	...
	1882	1895	1923	...	1945
Switzerland	62	45	38	...	34
	...	1896	1913	1938	...
Italy	...	72	53	37	...
	...	...	1925	...	1950
Japan	...	...	59	...	40
	...	1913	1928	1940	1955
USSR	...	67	61	39	29

SOURCES : Data for Great Britain, France, Germany, the United States, Belgium, Switzerland and Japan from Hoffmann, W., *The Growth of Industrial Economies*, Statistical Appendix; for Italy, from Gerschenkron, A., "Rate of Industrial Growth in Italy, 1881-1913," in *Journal of Economic History*, XV, No. 4 (December, 1955), 365 ; data for Japan (1950) from United Nations, *Supplement to the Monthly Bulletin of Statistics* (1954) and for France (1952) from OEEC, *Statistical Bulletin, Definitions and Methods : Indices of Industrial Production* (Paris, 1957); and for the U.S.S.R. from *Narodnoye Khozyaistvo* (Moscow, 1956), p. 52.

NOTE :

Owing to the limitations of statistical comparability, the figures are to be treated as crude indicators only. The data are based on "net value added" in manufacturing industries (excluding mining and building) for all countries except the U.S.S.R. where they refer to the gross value of output and include mining. For definitions, see the opening paragraph of this section and the footnote to it.

pre-industrial countries at the present time. But a study of the historic evolution of the over-all sectoral pattern—the relationship between producer goods and the consumer goods—in the major industrial countries may be more relevant. Consumer goods, as defined here, include all those finished goods and also semi-finished goods (e.g. yarn) which, although often used in industry, are largely bought by the public in a finished form—primarily for consumption in the home. Producer goods include raw materials, semi-manufactured articles and capital goods which are used by manufacturers.¹¹

It is indeed striking that in all the major industrial countries for which data are shown in Table 3 there was a continuous decline over time in the share of consumer goods in total industrial output. At the beginning of industrialization in these countries, consumer goods accounted for two-thirds or more of total industrial output, and producer goods for the remainder. In the course of industrial development, however, the relative position of these two sectors was almost completely reversed—the share of consumer goods falling to around one-third of total industrial output and that of producer goods rising correspondingly. The rate of growth of the producer goods sector was thus throughout this period higher than that of the consumer goods sector.

In the early phase of industrialization—stretching from a few decades to half a century in the United Kingdom, France, Germany, the United States, Italy, Japan,¹² and the U.S.S.R.—the producer

¹¹ The definition, and part of the data used in this section, are from Dr. W. Hoffmann's two studies, *British Industry, 1700-1950* (Oxford, 1955), and *Stadien- und Typen der Industrialisierung* (Jena, 1931). The latter book has recently been published, in a somewhat revised and expanded version, in English translation under the title, *The Growth of Industrial Economies* (Manchester, 1958). The consumer and producer goods industries are defined to include four broad groups of industries under each—the consumer goods sector includes food, drink and tobacco, clothing (including footwear), leather goods and furniture (excluding other wood-working industries); the producer goods sector includes ferrous and non-ferrous metals, machinery, vehicle building and chemicals. These groups account for "two-thirds of the net output of all industry." For details, see *The Growth of Industrial Economies*, pp. 8-17.

¹² Owing to statistical limitations, the data for Japan are not shown in Table 4; but the developments there were essentially similar to those elsewhere. See Lockwood, W. W., "The Scale of Economic Growth in Japan 1868-1938," in Kuznets, Simon, Moore, W. E. and Spengler, J. J., editors, *Economic Growth: Brazil, India, Japan* (Durham, 1955), pp. 153-154.

goods sector grew one and a half to more than two times as fast as the consumer goods sector (*see* Table 4). Once industrialization had reached a fairly high level and the proportion of consumer goods in total industrial output had fallen to around one-third, the difference in the rates of growth of both these sectors narrowed down significantly, with the producer goods sector expanding only a little faster than the consumer goods sector. This general pattern of industrial growth—producer goods expanding nearly twice as fast as consumer goods in the early phase of industrialization and the gap between the rates of growth for the two sectors narrowing down later on—appears to have been a characteristic feature of economic development in all the major industrial countries.¹³ Among these countries, there were very real differences in their natural resources endowment, in the accumulation of technical skills, in the period when they began industrialization, in the speed of their growth, in their attitude and actual experience regarding international trade and capital movements, in the proportion of capital goods output devoted to exports, in the fiscal and other forms of economic policies pursued, and in how industrial growth was promoted—through private enterprise (and therefore without a strict pre-determination of sectoral priorities) or through state encouragement and central planning. Despite these differences there was nevertheless a striking uniformity in the evolution of the sectoral pattern of their industrial growth.

In a broad historical sense, there is nothing surprising in such a development. It is only a common sense proposition that since output of producers goods is the least developed segment in the early phase of industrialization, it should expand much faster than the consumer goods sector. Moreover, the share of investment (and hence producer goods) in national output and expenditure usually rises in the process of economic growth and calls for a more rapid expansion of the supplies of producer goods than of consumer goods.

¹³ This pattern of growth, however, is not restricted to the major industrial countries only. As Hoffmann has shown by an analysis of changes in industrial structure over time, it applies to small industrial countries also. He has defined three basic stages in industrial growth in accordance with the changes in the ratio of the volume of consumer goods output to that of producer good output; in the first stage, the ratio is $5(+):1$, in the second $2.5(+):1$ and in the third it is $1(+0.5):1$. The fourth stage has a still lower ratio. See Hoffmann, *The Growth of Industrial Economies*, *op. cit.*, pp. 2-3, also Chapter IV.

TABLE 4

RATES OF GROWTH OF CONSUMER AND PRODUCER GOODS AND THEIR RATIO
IN SELECTED COUNTRIES

<i>Country and Period</i>	<i>Total Industrial Output</i>	<i>Consumer Goods Output</i>	<i>Producer Goods Output</i>	<i>Ratio of Producer Goods Output to Consumer Goods Output Col. c/b</i>
	(a)	(b)	(c)	
<i>Per cent per year</i>				
<i>Great Britain</i>				
1812 to 1851	3.4	3.1	4.0	1.3
1851 to 1881	2.7	2.0	3.8	1.9
1881 to 1907	1.8	1.5	2.0	1.3
1907 to 1935	1.0	0.8	1.2	1.5
<i>France</i>				
1861-65 to 1896	2.4	1.2	3.3	2.7
1896 to 1921	0.5	..	1.1	...
<i>Germany</i>				
1860 to 1880	2.9	1.8	3.9	2.2
1880 to 1900	5.0	3.7	5.4	1.5
1900 to 1913	3.4	2.5	3.7	1.5
<i>United States</i>				
1880 to 1900	4.5	3.2	5.1	1.6
1900 to 1927	4.2	3.9	5.5	1.4
<i>Italy</i>				
1896 to 1913	5.4	3.5	8.7	2.5
<i>USSR</i>				
1928 to 1940	17.0	12.0	21.2	1.8
1940 to 1955	8.1	6.1	9.1	1.5
1958 to 1965 (Plan)	8.8	7.3	9.3	1.3

SOURCES AND METHODS :

Hoffmann, W., *British Industry, 1700-1950* (Oxford, 1955); Wagenführ, Rolf, *Die Industriewirtschaft* (Berlin, 1932); for Italy and the U.S.S.R., the same as in Table 3; also N. S. Khrushchev's *Report to the XXI Congress of CPSU* (Moscow, 1957). The rates of growth for France and the United States derived by applying the proportions for each of the sectors given in the Statistical Appendix to Hoffmann's study, *The Growth of Industrial Economies*, to the movement of the index of manufacturing production for the periods concerned.

NOTE : See Note to Table 3.

This process is generally reinforced by an increasing substitution of imported producer goods by domestic output.¹⁴ The relatively faster expansion of producer goods often continues even at a later stage of economic growth when the share of investment in national expenditure becomes more or less stable largely due to a rise in the actual machinery and equipment content per unit of fixed asset formation and in the share of producer goods in exports¹⁵. Many economic historians have regarded such a development as an essential feature of industrial growth,¹⁶ although other economists, perhaps owing to their limited acquaintance with long-term experience and their preoccupation with contemporary concerns, have been less than clear on this point.

III. CHANGING SHARES IN THE WORLD'S INDUSTRIAL OUTPUT

Differences in the rates of growth of industrial output, described above, have led to important changes in the relative position of various countries and areas in total world industrial output. An analysis of these changes is of great interest in elucidating the conditions under which the gap between the most advanced industrial nations and the late-comers was closed. Its relevance to the contemporary problem of closing the gap between rich industrial countries and poor pre-industrial areas needs no emphasis.

Great Britain was the seed-bed for the early phase of the industrial revolution. Although it had only about 2 per cent of the world's population, more than one-half of the world's industrial output was concentrated in these islands throughout the first half of the nineteenth century. In a world in which the growth of output in relation to population was almost stagnant, Great Britain attained a decisive superiority by realizing rates of growth of 2 to 3 per cent per year. Although these rates appear very modest in comparison with those current in many parts of the world in the last few decades,

¹⁴ For elucidation of a similar conclusion reached by a discussion of export prospects, see Patel, Surendra J., "Export Prospects and Economic Growth: India," in the *Economic Journal*, LXIX, No. 275 (September, 1959), 490 ff.

¹⁵ This may also be explained to some extent by the fact that a part of the final output of the metal, vehicle and chemical industries is destined for consumers.

¹⁶ Hoffmann, W., *British Industry, 1700-1950*, op. cit., p. 73; and *idem*, *The Growth of Industrial Economies*, op. cit., p. 2. Also see Gerschenkron, A., "Rate of Industrial Growth in Italy, 1881-1931," in the *Journal of Economic History*, XV, No. 4 (December, 1955), 365.

they were a powerful engine of massive expansion—particularly when cumulated over a long period—in a more or less stagnant world. The benefits they yielded in the nineteenth century to Great Britain in terms of wealth and power are now a matter of common knowledge. This was the period of which it is rightly said that England was the workshop of the world.

TABLE 5
RELATIVE POSITION OF SELECTED COUNTRIES IN WORLD INDUSTRIAL OUTPUT,
PERCENTAGE SHARE IN WORLD INDUSTRIAL OUTPUT

Period	Private Enterprise Economies							Centrally Planned Economies			
	Total	US	United Kingdom	Germany ¹⁷	Total Western Europe	Japan	Others	Total	USSR	Eastern Europe	China
1870	97	23	32	13	62	...	12	3	...	...	...
1896-1900	96	30	20	17	53		13	4	...	...	...
1913	95	36	14	16	44	1	14	5	...	..	...
1926-1929	95	42	9	12	35	2	16	5	(2)	...	...
1953	77	41	6	6	25	2	9	23	14	(7)	(2)
1958	69	31	5	7	25	3	10	31	18	...	...

SOURCES :

Same as Table 1. Data for 1870 to 1926-1929 from League of Nations, *Industrialization and Foreign Trade* (Geneva, 1945), p. 13, and for 1953, as indicated in the general note to Table 1 ; those for 1958 derived by deflating the relative weights by the movement of the index of industrial output ; the weight assigned in the League of Nation's study to the industrial output in the U.S.S.R. in 1926-29 adjusted to agree with the movement of the index for the U.S.S.R. in Table 1.

NOTE :

The relative shares of countries are based on very crude data and any inter-country comparisons should be limited to broad order of magnitude rather than precise statistical measurement.

¹⁷ All of Germany up to 1926-29 and only western Germany thereafter.

The growth of industrial output in other countries in Europe and in the United States at rates twice as high as in Great Britain had started making inroads into British industrial supremacy during the second half of the nineteenth century. To the contemporary Europeans, the economic race between Great Britain and Germany was not just a subject of idle curiosity ; it was intimately bound up with the realities of power and influence over the rest of mankind. While this contest constituted a centre of attention for the historians of the late nineteenth century, the rapid emergence of the United States as a world industrial power was of far greater significance.¹⁸ Already by the close of the nineteenth century the United States had surpassed Great Britain in total volume of industrial output (see Table 5), which by the end of the century was one and a half times higher than in Great Britain, and total German output was not far behind the British. Since the First World War the United States has remained the centre of the industrial world, accounting for nearly 40 per cent of its output.¹⁹ Less than half a century was needed to accomplish this change.

During the first half of the twentieth century, other countries—Italy, Japan and the U.S.S.R.—began industrializing. Their pace of growth was still higher, but their share in world output in the initial period was so low that until the middle of this century their growth had little effect on the relative positions of other countries. This, however, was no longer the case by the end of the fifties. By then, the division of the world into two zones or regions was a fairly settled affair : the private enterprise economies, which basically maintained—although with considerable modifications in recent years—private ownership of means of production and depended

¹⁸ To the historians who study the present economic competition between the United States and the U.S.S.R., it may be suggested that the economic developments in contemporary China may not have an altogether dissimilar significance for the twenty-first century.

¹⁹ Whatever the shift in the relative position of Great Britain and the United States, the total industrial output in these two English-speaking countries has continued to account for one-half or more of the world's industrial output throughout the nineteenth century and the first half of the twentieth century. Economics—the whole body of the theoretical premises, the neat schemes of internal balances and disturbing elements, the bundle of logical deductions and policy conclusions—is in no small measure associated with this ; for economics is for the most part a product of the English-speaking countries with occasional contributions from the outside.

on private enterprise for economic growth; the other, the centrally planned economies, where the resourcefulness and the financial ability of the individual daring entrepreneur of the Schumpeterian type was replaced by the leadership of the state in planning and promoting industrial growth. The precise measurement of the rates of growth which the latter group has attained remains a subject of considerable controversy among western scholars, but there is general agreement that these rates have been high—they are usually placed in the range of 8 to 10 per cent per year,²⁰ or more than twice as high in the United States and nearly four times the rate common in the older industrial countries.

The relative position of the two groupings shown in Table 5 is very approximate, in fact only illustrative, and no attempt should be made to read into it any statistical precision. For the purpose of a broad survey of this type, it is not very important whether a few percentage points are added to or subtracted from either region. What is of decisive importance is the present relationship between their respective rates of growth. Given this relationship and given its continuation over the next decade or two, little arithmetical skill is needed to indicate that the industrial output of the centrally planned economies could approximate that of the rest of the world 15 to 25 years hence. Whether the level of industrial output in the centrally planned economies in recent years is taken as one-half, one-third or one-fourth (and these relative positions have been suggested by various scholars) of that in the private enterprise economies makes a difference of only a decade to the period—15 years or 25 years—in which the industrial output in both groupings could become approximately equal.

²⁰ For details regarding rates of growth in the Soviet Union, see Hodgman, Donald R., *Soviet Industrial Production, 1928-51* (Cambridge, Mass., 1954), pp. 89, 134; Jasny, Naum, *The Soviet Economy During the Plan Era* (Stanford, 1951), p. 23; Clark, Colin, *The Conditions of Economic Progress*, second edition (London, 1951), p. 186, and Seton, F., "The Tempo of Soviet Industrial Expansion" in *Bulletin of the Oxford University Institute of Statistics* (February, 1958), 18. The rates of growth of industrial output in the U. S. S. R., estimated by western scholars for the period 1928 to 1940, are lower than official estimates, although the difference between these has continued to narrow with the passage of time. The annual rate of growth was 11 per cent according to Jasny and Clark, 13 per cent according to Hodgman and about 13 to 14 per cent according to Seton; the official estimate was 16 to 17 per cent.

Whether the present differential in the rates of growth in these two areas will continue or will narrow is not the main concern of this paper. The important point is this : once the continuation of the differential in the rates is assumed, the closing of the gap in a relatively short period is an arithmetically inevitable consequence. It would merely be a repetition of what Great Britain attained in the first half and the United States and Germany in the second half of the nineteenth century. In all these countries the underlying conditions were also the same, that is, the rate of growth of the new-comer was twice (or more) as high as that of the old-timer ; and the period needed for closing the gap was less than half a century—the lifetime of a man in his twenties.

One further observation of some relevance may be made in this connection. Although a number of countries have become industrially strong over the last century, over 90 per cent of the world's industrial output has continued to be concentrated in areas (including eastern Europe and the U.S.S.R.) inhabited by peoples of European origin—peoples now accounting for rather less than one-third of the population of the world. There have been varying degrees of industrialization in other countries (Japan, India, and China) but the share of these countries in world output was very small until recent years. An unfortunate consequence of observing such a concentration was the cultivation of a belief in some quarters that industrial growth was somehow an exclusively European plant which might be grown with great care in a few and specially selected gardens in the rest of the world but could hardly be expected to become a matter of mass cultivation.

It is true that all new technical developments require attaining adequate training and in many instances adaptation of habits of thought and behaviour.²¹ But in a wide historical perspective, industrial growth, or more precisely the application of machinery to productive use, would seem to be no more the exclusive hallmark of a particular geographic (and hence ethnic) region than were all the past landmarks in mankind's long development—early use of fire and later the taming of it, domestication of animals, agriculture and irrigation, smelting of ores and use of metals,

²¹ A. Gerschenkron has drawn pointed attention to this. See his paper, "Economic Backwardness in Historical Perspective," in Hoeselitz, Bert F., editor, *The Progress of Underdeveloped Areas* (Chicago, 1952), p. 23.

invention of scripts, paper and the art of printing, ship's stern-post rudder and marine-compass, gunpowder, Indian numerals and the methods of calculation, and many others. Many areas of the world would recognize in such a list their own contribution—which was carried forward, enriched and brought to fruition in some other parts at another time. The experience of industrial growth in Japan, and in more recent years in India and China, should indicate that the idea of industrialization as an exclusive possession of the peoples of European origin is based on an arrogant ignorance of history rather than on facts.

IV. PERSPECTIVES FOR THE PRE-INDUSTRIAL COUNTRIES

While looking back over the broad sweep of industrial growth over the last century, it is indeed tempting to peer into the years to come. In any such crystal-gazing, the dominating theme is bound to be the spread of the machine age and industrial growth to the countries which have so far remained almost wholly untouched by it. The increasing attention being devoted to the problem of narrowing international disparities in incomes and levels of living is evidence of the growing importance of the problem.

If, in a map of the world, the oceans are removed and the continental land masses huddled together, the resulting conglomeration of countries looks like an inverted flower-bud, with Great Britain forming the stem, France, Germany and central Europe the heart, Canada, the United States, Australia and New Zealand one calyx, and the Scandinavian countries, eastern Europe, the U.S.S.R. and Japan the other; and the large continents of Asia, Africa and Latin America lie together like the closed petals of this flower-bud. After thousands of years of cold and dreary winter, the arrival of spring-time of mankind—a century of the machine age—has just barely seen the invigorating sap pass through the stem, heart and calyx of the bud. The dominant process in the century to come will no doubt be its full blossoming.

A number of factors will have great relevance in determining the time, and the extent of the growth of industrialization in these continents. Foremost among them will no doubt be natural resources—not in any static form as something given once and for all, but as a dynamic function of man's ever-growing technological

ability to use these more fruitfully than before—and the social structure with its internal drive and stresses and the ability to grow without overstraining. Many new problems will arise ; and many of the older problems will probably be approached and solved differently in the light of changed circumstances and possibilities. Furthermore, adequate development of agriculture and other sectors besides modern manufacturing industries is needed for an economy's overall growth. Consideration of all these important points is beyond the scope of this study

The arithmetical pre-condition for narrowing and finally closing the gap in standards of living between the industrial and pre-industrial countries is that the rate of economic growth in the non-industrial countries should be higher than in the industrial ones. Overall economic growth and levels of living include of course, as mentioned above, the development of many sectors—agriculture, health, education, housing, etc.—besides industries. In such all-round development, it is now generally accepted that industrialization plays a crucial role. One of the findings of this study is that the rate at which industrial growth has taken place in each of the newly industrializing countries over the last century has progressively continued to rise—from some 2 to 3 per cent in early nineteenth century to 4 to 5 per cent up to the first world war and some 8 to 10 per cent in the last few decades. Moreover growth at such rates has continued for a number of decades.

Thus, if a newly industrializing country can attain an annual increment of 8-10 per cent in its industrial output, and can maintain this for 3 to 5 decades, the task of narrowing substantially and even closing gap in output between the older industrial countries and the newcomers is not formidable at all. This is because of the relentless force of growth at compound rates over a period of time—particularly towards the end of the period.²² The expansion in 50 years at 2 per cent will be 2.7-fold, and at 4 per cent 7-fold; but at 8 per cent it will be 47-fold and at 10 per cent 120-fold. A few more decades and it assumes staggering proportions. By estimating the present differences in per capita output between some

²² Drawing attention to the staggering increase involved in compound rates of growth, Keynes once illustrated this by the probable growth of the treasures of £40,000—the prodigious spoils of the *Golden Hind*—with which Captain Drake returned to England in 1580. See Keynes, *op. cit.*, p. 362.

of the pre-industrial countries and the industrial ones, it is not difficult to estimate that once a rate of 8 to 10 per cent annual growth is maintained, it is only a matter of half a century or a little more—just a life-time to close even the widest gap.

Although the desirability of high industrial growth for the pre-industrial countries has been stressed in the preceding pages, it is not meant to suggest that these countries should somehow be permanently obsessed with faster growth for its own sake. Such folly would have few lasting rewards. At the same time, there is little ground for pathetic patience with postponing the possible—a very rapid elimination of want and poverty. Once this is done, different nations may decide differently the length of time during which they may wish to pursue the race for conspicuous consumption. A more appropriate strategy of growth for these countries would be to attain very high rates of growth in the earlier phase and cumulate the enlarged mass of output at somewhat lower rates.

While the importance of a high rate of growth in alleviating rapidly mankind's age-old afflictions of poverty and squalor is obvious, the difficulties involved in maintaining it need not be overlooked. Many countries, both in the private enterprise economies and in the centrally planned economies, have for fairly long periods maintained rather high rates of industrial growth. An adequate analysis of their experience, without necessarily accepting in John Stuart Mill's words "the slavery of antecedent circumstances," should be of great relevance in throwing light on the prerequisites for attaining similar or higher rates of growth in the non-industrial countries of today and on the nature and extent of the avoidable and the unavoidable difficulties involved. Moreover, such difficulties will have to be adequately balanced, as has rarely been done so far in the discussion on economic development, against the very real costs of stagnation or slow growth and the persistence of economic poverty. If narrowing the gap between the rich industrial and the poor non-industrial countries is to be the dominant theme for the century to come, the central task of economic theory and analysis would then seem to be the elucidation of the pre-conditions for attaining—and maintaining for a few decades—higher rates of economic growth in the non-industrial countries.

ECONOMIC DISTANCE BETWEEN NATIONS : ITS ORIGIN, MEASUREMENT AND OUTLOOK*

THROUGHOUT the ages most of mankind has spent most of its energy making a living—finding food, clothing and shelter. The economic problem was the nucleus of all its activities. Poverty and squalor were the lot of most people. Economic inequality was an issue that always excited the most sensitive minds. The quest for economic equality formed the fountain-head of all shades of religious, philosophical, social and political speculation. Over the last century, however, the *per capita* real income in the countries now called industrially advanced has risen seven-to ten-fold. In the process the age-old affliction of poverty was swept away from the centre to the fringe. Domestic inequality could no longer remain the battle-cry of social change in these countries.

A different type of inequality has now slowly impressed itself upon the conscience of advanced thinkers—the vast gap in levels of living that divides rich and poor countries of the world. Shrinking distances and increasing knowledge about other peoples have contributed to its rapid recognition. It has been characterised as “the most important and fateful fact in the world today.”¹ Now, on the second centenary of Adam Smith’s advocacy of *laissez-faire*, nearly every country is planning to chart consciously the course of its development. Literature on economic growth has mushroomed. Economic models, often built on fragile foundations, have multiplied. Empirical research has delved into the lumber-rooms of the economic history of industrial nations in search of the master-key. And yet, the economic distance between the rich and the poor countries has continued to lengthen.

Some of the simplest, but obviously the most crucial questions concerning this economic distance still remain to be answered : When did it evolve ? How long did the process take ? How large

* Reprinted from the *Economic Journal*, Vol LXXIV, March 1964.

¹ Address by Adlai E. Stevenson, while receiving the Honorary Degree of Doctorate of Literature from McGill University ; see *New York Times*, May 30, 1959.

is it? What were the dimensions of time and pace that brought it about? Can it be bridged in the foreseeable future? One might expect that the discussion on economic growth would begin by attempting tentative answers to these questions. But in the quest for the complex the simple and obvious has too often been overlooked. The modest aim of this study is to attempt to fill in this gap.

1. THE WORLD ECONOMIC LANDSCAPE IN 1850

In the history of mankind civilizations had mostly centred in the temperate and tropical climates owing to the dependence on cultivation as the major source of livelihood. Climatic conditions farther north or south were too cold for comfortable survival. This position has been reversed recently —the rich countries are to be found in relatively cold climates. The tools of the economic archaeologist are plainly inadequate to decipher the differences in economic well-being in various part of the world over the 6,000 years of man's "civilized" existence. It has been generally suggested that till the beginning of the Industrial Revolution these could not have been very large.² The Industrial Revolution is dated to have begun nearly two centuries ago. But various indicators suggest that it could not have raised the average income much even in north-western Europe till about 1850.

Many mechanical inventions had taken place by 1850. But their adoption was restricted to Great Britain; even there, except for the textiles industry, it was only on a small scale. The horse and the chariot were still the major means of communication. Propeller-driven ocean-going steamers were yet to replace the sails. The steam locomotive had its first experimental run only in 1826.

World output of pig iron in 1850 was only 4.6 million tons, and half of it was in Great Britain. The most advanced countries were still in the last days of the Iron Age. Cast iron could be used in rails, pillars, bridges, cylinders and even wheels; but it had its

* See Keynes, J. M., "Economic Possibilities for our Grandchildren (1930)" in his *Essays in Persuasion* (London, 1931), p. 360; also Schultz, T. W., "Reflections on Poverty within Agriculture" in the *Journal of Political Economy*, Vol. LVIII, No. 1 (February 1950), pp. 7-9; for somewhat crude, but suggestive, statistical data, see Clark, Colin, in *Review of Economic Progress*, Vol. 1, No. 4, April 1949.

limits. It was not suited for the working parts of engines and machines. The technique of producing steel had hardly gone beyond the handicraft stage. The Steel Age was just beginning. The Bessemer converter was invented in 1856, and the Martin-Siemens process in 1864-67. But even by 1870 world output of steel was no more than 700,000 tons—or less than one-fifth of India's output in 1961

The Age of Alchemy had not yet ended. The Machine Age was just beginning. The early steam engine was clumsy and cumbersome. The internal-combustion engine was yet unknown. The electric motor and generator were still more than a quarter century away. The muscles of men and animals provided 94 per cent of the energy available to man in 1800. A hundred year later the position was completely reversed—animate power supplying only 6 per cent, and mineral fuel and water power 49 per cent.³

Even as late as 1860 more than half the population of north-western Europe and the United States was occupied in agriculture—not much different from the share in the pre-industrial countries at present. Nor were land/man ratio (in north-western Europe), yields per hectare of land, share of industries in total output and population in urban centres (over 100,000 inhabitants) significantly higher. Illiteracy ratios were only marginally different. Even the peoples of western Europe simply did not have the means to be economically much better off than the rest of mankind. There is no need to travel back into history much farther than 1850 to reach this point. The familiar is so often taken to be the permanent.

Empirical evidence about the income level in the industrial countries in 1850 supports this general picture. Professor S. S. Kuznets had extrapolated backward their *per capita* income in the early fifties by applying the known rate of growth. The data in the table below show the years when such a regression (growth backward) yields a *per capita* income of \$200 in comparable 1952-54 prices.

Index numbers covering a fairly long period of time are open to a number of weaknesses and large margins of error. Without claiming strict precision, they may be used to indicate the broad

³ United Nations, *Determinants and Consequences of Population Growth*, (New York, 1953), p.187.

sweep of change. A weighted average and straightline extrapolation in time suggest that the average *per capita* income in industrial countries as a group was about \$170 by 1850⁴—or 70 per cent higher than in the pre-industrial countries at present (\$100). The *per capita* output in most countries in the latter group may be assumed not to have changed much over these 100 years. Available evidence for some countries (India, Egypt, etc.) suggests a decline⁵ offsetting most of the expansion in other countries in Latin America and the Middle East.

United States	1832	Denmark	1867
United Kingdom	1837	Germany	1886
Switzerland	1839	Sweden	1889
Canada	1846	Norway	1891
Netherlands	1847	Italy	1909
France	1852	Japan	1955

SOURCE : Kuznets, S. S., *Six Lectures on Economic Growth* (Glencoe, 1959), p. 27; countries arranged in chronological order of reaching *per capita* real income of \$200. In few cases where available data did not go all the way back to the year indicated, the growth rates for shorter periods were applied for regression ; as a result, they may understate the income level at that year.

These estimates make no allowance for free sunshine, and therefore lower requirements (in economic value) of calorie intake, clothing and shelter for human survival in warmer pre-industrial countries. Even then, it would seem that in the economic landscape of the world in 1850 the industrial countries of to-day could not really have been the sunny mountain-tops and the pre-industrial ones the dark crevasses. Broadly speaking, some patches were somewhat brighter than the others.

There is another conclusion of some significance that follows from the above analysis. As late as 1850, the average income in most countries was subsistence income—a rock-bottom level below which human existence would be impossible. Before then there were

⁴ If the United Kingdom and the United States are excluded from the total the average *per capita* income in the rest of the group would be \$150 by 1850. There were special factors for the high income in these two countries: the United Kingdom was the pioneer in industrialisation, and benefited from supremacy in world trade and colonial exploitation, the United States of America had abundant virgin lands.

⁵ See Patel, Surendra J., "Long-term Changes in Output and Income in India: 1896-1960," in the *Indian Economic Journal*, Vol. V, No. 3, January 1958, pp. 242-6 ; and Kuznets, S. S., *Economic Growth*, *op. cit.*, p. 25.

ups and downs. Economic growth could not have been steady. This may be illustrated by an arithmetical exercise. At a steady growth of only one-tenth of 1 per cent per year *per capita* income would rise about 7 times in 2,000 years, 20 times in 3,000 years 50 times in 4,000 years and nearly 340 times in 6,000 years. This would imply that the average person in Egypt, Sumer or the Indus Valley, at the height of its glory, was fifty times poorer than today—or had an annual income of less than \$2 in 1960 prices ! An absurdly impossible proposition.

At this point the discussion may be summarised : Until the beginning of the Machine Age by about 1850 the differences in the average income among countries were not great. No country had attained a built-in steadiness in its economic progress. Both these elements appeared on the world economic horizon approximately a century ago.

2. EVOLUTION OF THE WORLD ECONOMY SINCE 1850

How has the world economic landscape altered since 1850 ? How big and how rapid were these changes ? What were the dimensions of time and pace ? These are some of the general questions discussed in this section.

The measurement of the pace and the extent of economic growth is still in its infancy. It relates mostly to industrial countries. The image of the world economy becomes foggier as the economists focus their time-machines backwards in history. Even imprecise series are not available for most of the countries. Under the circumstances only a hardy soul would aspire to statistical accuracy. But a bird's eye-view of the broad sweep of changes over this century may be given with a few heroic assumptions. Table 1 represents such an effort—but only that, and no more. The methods of estimation and country coverage are shown in the Appendix. Even these rough data suggest a number of observations.

(1) The distribution of world population between the industrial and the pre-industrial countries has not altered significantly over the years.* The population in the former increased slightly faster than in the latter.

* The division of the world into industrial and pre-industrial countries reflects the position as of 1960. The grouping for 1850 refers to the same countries

TABLE 1
APPROXIMATE CHANGES IN THE WORLD DISTRIBUTION OF POPULATION AND INCOME, 1850-1960

Areas	Population, in millions		Income, billions of US \$ 1960		Population, share in percentages		Income, share in percentages		Annual Compound growth rate in percentage per capita total income	
	1850	1960	1850	1960	1850	1960	1850	1960	1850	1960
<i>I. Private enterprise economies</i>										
(a) Industrial	200	550	35	660	26	28	39	78	1.8	2.7
(b) Pre-industrial	560	1,450	55	190	74	72	61	22	0.2	1.1
Total	760	2,000	90	850	100	100	100	100	1.2	2.1
<i>II. Centrally planned economies</i>										
(a) Industrial	100	300	10	270	24	30	25	79	2.0	3.1
(b) Pre-industrial	310	700	30	70	76	70	75	21	—	0.8
Total	410	1,000	40	340	100	100	100	100	1.1	2.0
<i>III. World</i>										
(a) Industrial	300	850	45	930	26	28	35	78	1.8	2.8
(b) Pre-industrial	870	2,150	85	260	74	72	65	22	0.1	1.0
Total	1,170	3,000	130	1,190	100	100	100	100	1.2	2.0

(Sources, and other notes at the foot of the next page)

(2) World population rose more than two and a half times. But world output multiplied by more than nine-fold, so that *per capita* income expanded nearly four times.

(3) Of much greater significance than these world averages are the marked disparate trends in the industrial and the pre-industrial countries. The latter continued to represent the model of "dynamics of political economy"⁸ as elucidated by Ricardo, Malthus and Mill. "The power of population" marched almost in line with the "power of production."⁹

(4) The changes in the industrial countries, on the other hand, stand out in sharp contrast. Their population nearly trebled, but output increased by over twenty times. The faint noise of their "population explosion" was drowned in the thunder of their "economic explosion." *Per capita* output rose more than seven times. Mill's formulation of the "dynamics of political economy" ceased to apply to them almost from the year of the publication of his classic.

(5) The rates of growth of agricultural and industrial output in the industrial countries during this transformation may have some operational significance in outlining the future contours for the pre-industrial countries. Over these decades the share of agriculture fell from 40-50 per cent of the total output to about

SOURCES AND METHODS : See Appendix for notes on country coverage of areas and the methods of estimating population and income.

NOTE. Owing to the very severe statistical limitations, the figures for population and income are to be treated as broad orders of magnitude rather than precise statistical measurements; they are rounded to the nearest 5 or 10.

as in 1960, although, it is obvious that none of the industrial countries of 1960, except Great Britain, could really qualify for this title in 1850. The significance of the distinction between the two groups in 1850 lies in drawing attention to those that developed economically or industrialised in this period and those that did not.

⁸Rapid economic growth in these countries has taken place only in recent decades. The annual growth rates covering the period 1850-1960 therefore understate by a wide margin their actual rate of economic growth in the more recent periods.

⁹The phrase used by John Stuart Mill at the beginning of Book IV, "Influence of the Progress of Society on Production and Distribution," of his *Principles of Political Economy* (1848).

⁹Ricardo, David, *The Principles of Political Economy and Taxation* (Everyman's Library edition), Chap. V.

(8) For those interested in broad orders of magnitude, some striking estimates may be suggested.¹³ If 6,000 years of man's "civilised" existence prior to 1850 is viewed as a day, the last 110 years is less than half an hour. But in that "half-hour" of intense activity, more real output has been produced than during the preceding period. Over one-third of the entire real income and about two-thirds of the industrial output produced by mankind throughout its "civilised" history was generated in the industrial countries in the last century. This was the basis of an unprecedented expansion of their productive capital.

(9) The magnitude of economic growth in industrial countries since 1850 is indeed impressive. But when expressed in terms of annual rate of growth, it appears modest by recent standards. The annual increases amounted to 2.8 per cent for total income, 0.9 per cent for population and 1.8 per cent for *per capita* income. Total income grew a little over three times as rapidly as population. But *per capita* output rose more than 7 times—by much more than what would be suggested by a comparison of the difference in the growth rates for population and total income! The small arithmetical difference between these two rates of growth is magnified manifold in terms of *per capita* output when compounded over a long period.¹⁴

(10) In recent discussions on economic growth reference is too often made to the "population explosion" in the developing countries. The preceding analysis suggests that if the growth rate of the economy is kept above that of population the resultant economic explosion makes a far more profound impact than the

¹³ The estimates in this paragraph were derived by adapting the methodology used in the study "How Many People Have ever Lived on Earth" in the *Population Bulletin*, Vol. XVIII, No. 1, February 1962, Appendix.

¹⁴ Drawing attention to the staggering increase involved in compound rates of growth, Keynes once illustrated this by the probable growth of the treasure of £40,000—the prodigious spoils of the *Golden Hind*—with which Captain Drake returned to England in 1580. "Now it happens," he wrote, "that £40,000 accumulating at $3\frac{1}{2}$ compound interest approximately corresponds to the actual volume of England's foreign investments at various dates, and would actually amount today to the total of £4,000,000,000 which I have already quoted as being what our foreign investments now are. Thus, every pound which Drake brought home in 1580 has now become £100,000. Such is the power of compound interest!" See his "Economic Possibilities for our Grandchildren (1930)" in *Essays in Persuasion*, (London, 1931), p. 362.

"population explosion."¹⁴ The mysterious power of growth at compound rate speeds *per capita* economic growth as the West-
lies did many a sailing-ship

The analysis so far may be summarised thus : in terms of economic dynamics, or economic mechanics (like Newtonian physics), the dimensions of time and pace for the evolution of international economic inequalities were an annual growth of 1.8 per cent in *per capita* output for 110 years in industrial countries against near stagnation in the pre-industrial ones. Like the source of every great river, the origin of the economic distance between nations was decidedly humble

3. MEASUREMENT OF THE REAL ECONOMIC DISTANCE

The outlook for economic growth in the industrial and pre-industrial countries over the years to come can hardly be assessed adequately without a working idea of the real economic distance between them. So far, the economic distance has been usually measured by the conventional yardstick of *per capita* income—this handy expression, in easily remembered numerals, of a country's economic well-being. Economists and statisticians have now produced such estimates for nearly every country. Politicians and planners have seized upon this mystic entity. They have used it as an infallible indicator for diagnosing ills, prescribing remedies, and for measuring progress. But the wider the use of these estimates the more subject they have become to critical evaluation.¹⁵

This section outlines a method of measuring the economic distance

¹⁴ If it is assumed, for the purpose of illustration, that population continues to grow annually at 2 per cent and output by 6 per cent, *per capita* output (at 4 per cent) could rise over 7 times in 50 years and 50 times in 100 years.

¹⁵ The usefulness of Colin Clark's estimate of 40 international units as the *per capita* income of India, was sharply questioned by Prof S. S. Kuznets as early as 1949. See his "National Income and Industrial Structure" in *Econometrica*, Vol. XVII, Supplement, July 1949, p. 207. The study of Gilbert and Kravis showed that the *per capita* income of Italy, if it were to be expressed in U.S. relative prices for comparison, needs to be raised upward by more than 80 per cent. See their *Comparative National Products and Price Levels* (O.E.E.C., Paris), p. 165. Also see Hagen in *National Bureau of Economic Research, Problems in the International Comparison of National Accounts* (Princeton, 1957), p. 384; Millikan, M. F., in *Hearings, Foreign Economic Policy*, 84th Congress, 1st session 1955, pp. 21, 28; Starks, Harry, *Infirmities*

between two countries—India and the United States. The choice of these countries was guided by two major considerations. One was the availability of statistics. But the other is perhaps of greater significance. These large countries represent the extremes on the world economic landscape—the *per capita* income in the United States being nearly 30 times higher than in India. The economic gap between the two is at its widest. Table 2 incorporates the main elements in such a comparison. It also indicates, hypothetically, the rates of growth and the number of decades which may be needed for India to reach the present level of *per capita* output in the United States.

TABLE 2

ILLUSTRATIVE MEASUREMENT OF THE ECONOMIC DISTANCE BETWEEN INDIA AND THE UNITED STATES : 1959

Output by industrial origin	Per capita ¹⁷ net output in U S dollars (1959)			Per capita output in U S (c) India (b)=1	Rates of growth and period needed by India to reach U S level (1959)	
	India		United States		Annual per capita rate of growth in per cent	Years
	In Indian prices	In U S relative prices				
	(a)	(b)					(c)	(d)	(e)	(f)
Agriculture	35	55	120	2.2	2.3	25-40
Industry	15	20-25	50	25-30	5-10	30-50
Commodity output	50	75-80	770	10	5	40-50
Other sectors	25	(100) ¹⁸	1330	(13) ¹⁸	5	?
Total output	75	175-180	2100	(12)	(5-6)	(40-50)

SOURCES : National statistics

NOTE : The figures, based on domestic product at factor cost, are very crude and have therefore been rounded to the nearest 5 or 10. This is particularly true for column (b), where the adjustments made are partly arbitrary.

of *per capita Income Estimates* (University of Miami), p. 3. Hollister, William W, *China's Gross National Product and Social Accounts, 1950-57* (Glencoe, 1958), pp. 138-48

¹⁷ Volume of output in each sector related to the whole population, and not to the number of people engaged in that particular sector.

Before analysing the data in Table 2, the assumptions upon which the exercise is built up need to be spelled out. The data in column (b), showing Indian *per capita* income by sectoral origin in U.S. relative prices, are not based on detailed price relatives of all the items in national accounts. They are the product of a rough and ready calculation. Their significance lies in pointing up sharply the real economic distance—particularly by the sector of origin—rather than measuring it precisely.

The prices of farm products in India are significantly lower than in the United States. An approximate comparison of various products suggests that the estimate of India's agricultural income should be raised by at least 50-60 per cent, and perhaps more, to make it comparable with that in the United States. Industrial output in India consists of production in both modern and small-scale industries; the output of the former appears to be undervalued—on a relative price basis—less than that of the latter. For the purpose of comparison, the output of both these is assumed to require a rough upward adjustment of about 50 per cent.

The rest of the economy is composed of the service sector. It presents the greatest difficulty in comparative national accounting. For example, an elementary-school teacher in India receives a monthly salary of about \$20; but his counterpart in the United States gets \$300 or more. Under any assumption, the real service rendered by (or productivity of) the latter is surely not 15 times higher than that of the former. Similar distortions arise when the incomes of public employees, bankers, barbers, traders and others are compared. The adjustment for this sector is therefore purely notional in character. It may be suggested that the level of wages and salaries in the service sector of a country is to a large extent a functional reflection of the level of productivity in the commodity sector.

Keeping in mind these statistical limitations, a few observations may be made concerning the data in Table 2.

(1) *Agricultural Output.* India is known as a land of agricultural scarcity. The United States, on the other hand, has faced an altogether different problem—agricultural surpluses. One might expect the difference in the output per head of total population between these two countries to be very wide. At current exchange rates (see columns (a) and (c) in Table 2), it was four times higher

in the United States than in India. But if it is expressed in U.S. relative prices, as it should be for the purposes of comparison, the ratio is only 2.2 : 1.¹⁸ *Per capita* income in the United States is nearly 30 times higher than in India, but agricultural output per head of population is only 2.2 times higher. The distance that separates agricultural surplus from scarcity is thus much narrower than has often been assumed.¹⁹

Once the gap is measured in this way, it can be suggested that at an annual *per capita* rate of growth of agricultural output of 2 per cent, India would need about 40 years only to reach the present level of *per capita* output in the United States—a level which, considering the very low expenditure elasticities for food items, would not increase significantly.²⁰ Thus, the transition from scarcity to surplus would not require endless centuries,

¹⁸ This is not as incredible as it may sound at first. The average U.S. stomach is little, if at all, larger than the average Indian stomach. The difference in *per capita* availability of food products in the two countries follows from the extent to which many stomachs remain empty and from the composition of diet in the two countries. To reach the level in the United States, the *per capita* supply of agricultural products in India will have to change roughly as follows : a fall by more than one-third in the intake of cereals and potatoes, a fall of two-thirds in that of pulses and nuts ; three-fold increases in sugar and fibres ; five-fold increases in fats and oils, milk products and fish ; and ninety-fold increase in consumption of meat (see F A O., *Yearbook, Production, Rome*). The patterns of food consumption are of course never exactly reproduced anywhere with rising incomes. It is impossible to imagine that meat consumption in India would rise to the U. S. standards. But these are the orders of magnitude needed if an exact replica of the United States agricultural basket were to be created in India. If these changes are applied to the existing structure of Indian agricultural output the overall increase required in *per capita* availabilities adds up to the magnitude suggested here.

¹⁹ For a similar conclusion, see "Development Problems in Southern Europe and Ireland" in the *Economic Survey of Europe in 1939* by the U. N. Economic Commission for Europe. *Per capita* agricultural output in southern European countries was estimated to be only 20 per cent lower than that in the industrial countries of western Europe, although *per capita* income in the latter was five times as high (Chapter VII, Table 7, p. 21).

²⁰ Between 1934-38 and 1956 the *per capita* consumption of a weighted basket of major quantities of food items in the United States increased by 8 per cent, showing an expenditure elasticity for physical quantities of food of only 0.1 per cent. See "Consumption Trends in Western Europe" in *Economic Survey of Europe in 1958*, United Nations Economic Commission for Europe (Geneva 1959), Chapter V, Table 5, p. 10.

but only a 2 per cent *per capita* growth for four decades.²¹ A higher growth rate would, of course, shorten the time.

(2) *Industrial Output.* At current exchange rates the net value of industrial output per head of the total population in the United States is over 40 times higher than in India ; but measured at comparable prices the ratio would seem to be in the range of 25-30 (see Table 2, column (d)). India would require roughly 70 years at a *per capita* rate of growth of 5 per cent per year, 60 years at 6 per cent, 50 years at 7 per cent, 40 years at 9 per cent and about 35 years at 10 per cent to reach the present level in the United States. Although the gap is very wide, the time needed to overcome it would thus not be very long at a high rate (between 7 and 10 per cent)—preferably much higher in the earlier and somewhat lower in the later period. These rates of growth are not very unusual. In recent decades many countries have attained and maintained them over considerable periods.

(3) *Total Commodity Output.* The adjusted total for *per capita* commodity output (column (b)) in India is about one-tenth of that in the United States. The disparity between the two countries thus is not as the figures of total *per capita* output in columns (a) and (c) would suggest—1-30. It is much more manageable—in the range of only 1-10. This is a gap which could be overcome in 80 years at an annual increase of 3 per cent in *per capita* output ; in 60 years at 4 per cent and in 50 years at 5 per cent. Thus, the dimensions of time and pace for the transition from abject poverty to relative affluence are five decades at a *per capita* growth rate of commodity output of about 5 per cent per annum. Are these really forbidding magnitudes?

(4) The economic distance between India and the United States is wider than almost anywhere else in the world. For countries in the intermediate range the dimensions of time and pace for bridging the gap would be obviously smaller. Measured in this manner, the task of narrowing the gap—even at its widest—needs no more than half a century, or just an adult lifetime, and not endless and hopeless centuries. There is thus little ground for pathetic patience with postponing the possible—a very rapid elimination of want and poverty.

²¹ The ratios here refer to the availability of agricultural output per head of total population and not to output per person engaged in agriculture. Since

4. OUTLOOK FOR THE DECADES TO COME

The post-war discussion on economic growth has proceeded along various lines—general theoretical explorations, model building, empirical analyses and elaborations of many specific aspects. At the centre of this multi-facet analysis has remained the notion of the vicious circle of poverty, suggesting that a country is poor simply because it is poor. Some, dissatisfied with this static formulation, have devised a more elegant dynamic term, “downward cumulative causation”—poverty breeds more poverty.²² The schematic framework which underlies this theme is neat and simple. In the pre-industrial countries *per capita* income is low, consumption high and savings (and therefore investment) necessarily low. Under the circumstances it would be idle to expect a high rate of economic growth. The ascent from such a deep crevasse of poverty is thus bound to be a long, arduous and often a hopeless undertaking.²³

And yet, the countries industrialized now were not, around half-way in the nineteenth century, much richer (or even more enlightened) than most of the pre-industrial countries now or then. Only a century ago the economic landscape of the world was pretty flat—some countries slightly better than others, but not really very much. From then on the engine of economic expansion in the industrializing countries moved at a moderate speed—by 1.8 per cent *per capita* per year. But continuous creeping for over a hundred years even at this slow pace has brought about massive economic expansion—a seven-to-ten-fold rise in average *per capita* income.

A number of factors could help towards the attainment of even a higher rate of growth in the pre-industrial countries. A vast accumulation of technical knowledge is awaiting assimilation. As Veblen so often stressed, the pace of economic growth now need not be cramped by the speed of technological progress, as

the labour force in agriculture can be expected to fall in the course of economic growth, the rise in *output per worker* in agriculture would have to be much higher than in the total volume of agricultural production.

²² P. T. Bauer. See his review of Higgins' *Economic Development in Economic Development and Cultural Change*, Vol. X, No. 1, October 1961, pp. 97-8.

²³ For a critical evaluation of this theoretical framework see Patel, Surendra J., “Savings, Investment and Economic Growth: A Dynamic Approach,” *Indian Economic Review*, August 1959.

was the case in the industrial countries. Assistance from the already industrialized countries can be expected to rise significantly, particularly with some success towards disarmament.²⁴ Public pressure for accelerating the tempo of economic growth is acting as the most powerful solvent of the rigidities of an out-moded social set-up. Planning Commissions and Agencies are being established to steer the economies towards set goals. Even when their performance falls far short of expectations the wide acceptance of forward-looking goals is acting as a catalyst in the process of overcoming the obstacles—almost in the same manner as the goal of political independence swept away in less than a decade and a half those handicaps which were the hobby-horses of the professors of political science. The revolution of rising expectations is creating its own social forces—on a national as well as on an international scale—to fulfil itself.²⁵

The main task before a growth-economist today is to elaborate the concrete technical details for attaining a high rate of economic growth—say, 5 per cent *per capita* per year for half a century. The final solution of the economic problem then would need no more than an adult's life-time. This was perhaps the prize for the pursuit of economics as a profession that Pigou held out in the Preface to his *Economics of Welfare*.

By the knowledge that our science seeks, it is possible that (the economic evils) may be restrained. Out of darkness light! To search for it is the task, to find it perhaps the prize which the dismal science of political economy offers to those who face its discipline.²⁶

²⁴ For details, see Patel, Surendra J., "Economic Consequences of Disarmament," *Bulletin of Atomic Scientists*, November 1962.

²⁵ As Keynes pointed out in the Preface to his *General Theory*: "The difficulty lies, not in the new ideas, but in escaping from the old ones which ramify, for those brought up as most of us have been, into every corner of our mind."

²⁶ Pigou, A. C., *Economics of Welfare*, Third Edition, 1932, Preface, page vii.

APPENDIX

Note on Sources and Methods for Table I

Methods of Estimation : Owing to the very severe limitations of data, the figure for income and population are to be treated only as broad orders of magnitude; they are rounded to the nearest five or ten. The estimates were derived as follows:

(a) *Population*. Estimates for 1850 based on source 4 and for 1960 on source 6.

(b) *Income*. 1850 data derived on the basis of assuming a *per capita* income of \$170 (in 1960 prices) for the private enterprise industrial countries (source 5, p. 27, and section 1 of this study), and \$100 for the centrally planned economies and for the pre-industrial countries. Estimates for 1960 based on sources 1 and 6 for private enterprise economies. The income data for the centrally planned economies, although notional, represent a compromise of the extreme views on the subject current in the West and the East, they are based on assuming *per capita* income of \$900 in industrial countries and \$100 for the pre-industrial ones.

(c) *Area Coverage*. Private enterprise industrial countries: Austria, Australia, Belgium, Canada, Denmark, Finland, France, West Germany, Ireland, Israel, Italy, Luxembourg, the Netherlands, New Zealand, Norway, Sweden, the United Kingdom and the United States; Centrally planned industrial countries: U.S.S.R. and all countries of Eastern Europe; Centrally planned pre-industrial countries: China, North Korea, Mongolia, North Vietnam; Private enterprise pre-industrial countries: all the countries not included above.

(d) *Sources*.

(1) Andic, S. and Peacock, A. T., "The International Distribution of Income: 1949-1957," *Journal of the Royal Statistical Society*, Vol. 124, Part 2, Series A (1961), pp. 206-15.

(2) Robinson, E. A. G., "The Changing Structure of the British Economy," *Economic Journal*, Vol. LXIV, No. 255, September 1954, pp. 447-8.

(3) Speech by Lychowski at the U. N. General Assembly, XIII Session: second Committee, agenda items 12 and 26.

(4) Woytinsky, W. S. and Woytinsky, E. S., *World Population and Production* (New York, 1953).

(5) Kuznets, S. S., *Six Lectures on Economic Growth* (Illinois, 1959).

(6) United Nations, *Determinants and Consequences of Population Trends, (1953)*, *Demographic Yearbook*, *Statistical Yearbook* and *Monthly Bulletin of Statistics*.

MAIN FEATURES OF ECONOMIC GROWTH OVER THE LAST CENTURY

ECONOMIC growth and factors influencing it was the central problem that fascinated the classical economists. The very title of Adam Smith's *magnum opus*, *An Enquiry into the Nature and Causes of the Wealth of Nations* (1776), is highly suggestive. But during the century that separated John Stuart Mill from recent years, most of the economists, particularly in the English-speaking countries, occupied themselves with exploring the problems of abstract price formation and static equilibrium. With the fear of economic stagnation in the thirties, and in more recent years with the increasingly articulate wishes of the newly-independent pre-industrial countries to foster economic growth more rapidly than before, attention is slowly shifting back to what was originally the central thought in political economy—the problem of economic growth. Different political systems in the world and the pressures generated by the requirements of competitive co-existence between them have combined to give the study of economic growth a more urgent and topical character.

The study of economic development in recent years has proceeded along two major lines. On the one hand, a number of abstract theoretical models have been constructed for the economy as a whole or for some of its sectors. On the other, many empiric studies have attempted to measure, as precisely as possible, the experience of actual economic growth in the major industrial countries over the last century. These two trends of enquiry have so far not been tied together into a generally acceptable, or even adequate, theory of economic growth. But the empiric studies have drawn attention to the easily indentifiable contours along which economic growth has proceeded. This paper attempts to summarize some of the main features of economic growth in the industrial countries over the last century. These relate to the pace of economic growth, to changes in the structural pattern of output, and to capital formation. All these obviously have considerable relevance for assessing the prospects of economic development of the pre-industrial countries in the decades to come. They may also indicate the main

contours along which economic growth may proceed in these countries.

1. PACE OF ECONOMIC GROWTH

Sustained economic growth is a relatively very recent phenomenon—barely more than a century old for most of the industrial countries, and obviously shorter for those which started developing later. In the history of mankind through the Stone-Age, the Bronze-Age and the Iron-Age—each approximately of 2,000 years' duration—there could not have been a continuous rise in the level of per capita output.¹ For even if it grew at only about 1 per cent per decade, it could increase roughly by about 20 times in 3,000 years, and over 50 to 60 times in 4,000 years. The rate of growth of per capita real output in the ages preceding the 19th century, therefore, could not possibly have been maintained even at 1 per cent per decade. In sharp contrast, in most industrial countries since half-way in the 19th century, it has been within the range of 1.5 to 2 per cent per year, and higher in some countries in the post-First World War Period.² There are two striking features about the pace of economic growth during the last century.

(a) Owing to wars, depressions and periods of recovery, there have been very wide variations in the rates of economic growth from one particular decade to another and from one country to another. But when these fluctuations are ironed out by using moving averages (see Table 1), there is no clear evidence of a general decline in the per capita rate of growth as a country reaches a higher level of income.

The per capita rates of growth of national output are shown in Table 1 for eight countries (for nearly a century) and for somewhat shorter periods for three countries. The whole period is subdivided into two with the First World War usually separating the two periods. Only in three countries—the United States, Canada and Germany—was there a marked fall in the rate of growth of per capita output during the second period. The decline in this rate was minor in

¹ See Keynes, J. M., "Economic Possibilities for our Grandchildren (1930)" in *Essays in Persuasion* (London 1931), p. 360.

² See Patel, Surendra J., "Economic Distance between Nations : Its Origin, Measurement and Outlook" in the *Economic Journal*, Vol. LXXIV, March 1964.

TABLE I

PER CAPITA RATES OF GROWTH OF NATIONAL OUTPUT IN SELECTED COUNTRIES

Countries ^a	Years			Annual rates of growth		
	Initial Period	Middle Period	Terminal period	Whole period	Interval I	Interval II
United Kingdom	1860-1869	1905-1914	1958-1960	1.24	1.18	1.29
France	1841-1850	1901-1910	1958-1960	1.44	1.52	1.36
Germany	1860-1869	1905-1914	1958-1960	1.64	1.97	1.36
Denmark	1870-1878	1904-1913	1958-1960	1.64	1.78	1.56
Canada	1870-1879	1905-1914	1958-1960	1.70	2.23	1.33
Switzerland		1890-1899	1959	1.71	...	1.71
United States	1869-1878	1904-1913	1959	1.80	1.95	1.33
Norway		1900-1908	1958-1960	2.12	.	2.12
Union of South Africa		1911-1912	1949-1950 1952-1953	2.15	...	2.15
Sweden	1861-1868	1904-1913	1958-1960	2.49	2.20	2.60
Japan	1878-1887	1908-1917	1959	2.80	2.83	2.78

SOURCES: Kuznets, S., "Quantitative Aspects of the Economic Growth of Nations," in *Economic Development and Cultural Change*, Vol. V, No. 1, October 1956, United Nations, *Yearbook of National Accounts Statistics*, 1960; and national statistics.

NOTE: The growth rates for the centrally planned economies are not shown in the Table; but from all available evidence, they are significantly higher than those shown for the countries in the Table.

France and Denmark. A substantial portion of the second period was dominated by the Great Depression. But as the data for the late fifties are added to this period, the decline in the rate of growth of per capita output in the second becomes smaller, this is particularly true of France and Germany. On the other hand, the rate

^a Arranged in ascending order of per capita rate of growth for the whole period.

was in fact higher in the second than in the first interval in the United Kingdom and Sweden—and presumably in Switzerland, Norway and the Union of South Africa. Most of the countries industrialized earlier do not appear to have fallen victim to what Keynes called the “rheumatics of old age.” The growth of their per capita real output has not so far shown a clear evidence of slackening as the total volume of output cumulated to high levels over the century.

(b) The per capita growth rate over the whole period for each of the new entrants in the field of industrialization has been higher than for those which industrialized earlier. This is clear from the data shown in Table I for countries such as (a) the United Kingdom and France with growth rates of 1.2 to 1.4 per cent ; (b) Germany, Denmark, Switzerland, the United States and Canada with growth rates of 1.6 to 1.8 ; and (c) Norway, Sweden and Japan with growth rates of 2.1 to 2.8 per cent.

The trend towards a progressive rise in the rate of growth of per capita output is further borne out by the experience of the Soviet Union since the twenties and other centrally planned economies since the post-war period. Although the data for these countries are not shown in the Table owing to the conceptual differences in the coverage and definition of national output in the private enterprise and the centrally planned economies, there is a general agreement that the latter have maintained for a considerably long period of time economic growth rates significantly higher than the former.

As industrialization spread from Great Britain to other countries, there was a general rise in the per capita rate of growth of national output from about 1.2 to 1.5 per cent per year in the early part of the 19th century, to between 1.5 to 2 per cent in the second half of the nineteenth century, and to around 3 per cent and above in the post-First World War period. But over this period, there was a progressive rise in population growth. The increase in the growth rate of overall output was therefore considerably higher than of per capita output. The growth rate in many countries with central planning as well as private enterprise was significantly higher during the last decade. The progressive rise in the rate of growth of per capita output over the last century is thus a fairly clearly established empiric phenomenon.

The progressive rise in the rate of growth of per capita output appears to have resulted mainly from the opportunity of benefiting from accumulated technological advance. The speed of economic growth in the "old" industrial countries such as the United Kingdom and France was largely determined by the pace of technological advance. New techniques could be applied only as they evolved. Each of the new entrants, however, did not have to follow religiously these slow, step by step developments in technique. The later a country began industrialization, the larger was the fund of technical advances upon which it could draw, and hence, the faster its possible rate of growth.

This feature is worth emphasizing, because otherwise the rise in the rate of per capita growth among countries with such vast differences can hardly be satisfactorily explained. A mere cursory reading of the list of countries⁴ which can now be considered industrial is sufficient to suggest that among them there are, and were, very wide major differences in their natural resources endowment ; in the size of the country and of population and its rate of growth ; in the land-man ratio and the relative pressure of population ; in the structure of employment and output and the level of per capita output ; in the cultural, educational and technical background of the population, its racial composition, its outlook on life and its social values and norms ; in the level and the rate of accumulation of technical skills ; in the period when they began industrialization and in the pace of its growth ; in the extent of dependence on foreign trade and external assistance and in their initial attitude and actual experience with regard to both of these ; in the fiscal and other forms of economic policies pursued ; in the manner in which economic growth was promoted—through private enterprise (and therefore without a strict pre-determination of goals or norms for overall and sectoral economic growth) or through state encouragement and central planning , in the social systems followed and in the calibre, vision, administrative and entrepreneurial ability and popularity of the political and economic

⁴ Arranged in a rough chronological order indicating the approximate time sequence in which industrialization and real economic growth began : the United Kingdom, France, Germany, the United States, Canada, Belgium, Switzerland, Czechoslovakia, the Scandinavian countries, Italy, Japan, the Soviet Union and some of the Eastern European countries (Brazil, Mexico, India, China, etc may be considered as prospective additions to this list).

leadership. In the progressive rise in the per capita rates of growth, it seems clear that the role of these so-called "factors" which were different in these countries was less relevant than the factors common to them—that is, the availability of a rapidly expanding treasure-house of technical knowledge and the ability to draw upon it.

The progressive rise of the rate of growth for each of the new entrants would also seem to supply the clue to the problem of bridging the gap in the levels of living between richer and poorer countries today. In fact, it was precisely through this means that the gaps in the levels of living among the various industrial countries themselves seem to have been overcome in the past. At the start of the sixties, levels of living in most of the countries in industrial Europe are now scarcely different from one another. This emergence of a homogeneous economic community with nearly equal levels of per capita income was possible solely because of the fact that each of the countries industrializing later attained and maintained, over a period of time, a rate of growth which was higher than that in the older industrial countries. It would seem that in the next stage of development—bridging the gaps between industrial countries as a whole and the less industrialized countries in the present day world—the operation of a similarly progressive rise in the per capita rate of growth would be called for—that is, the rate of growth in the late-comer countries being higher than that in the older ones.⁹ In view of the wide gap in the levels of *per capita* incomes in the two areas, the time-dimension needed for narrowing this gap is less likely to be much longer—about half a century—than was the case with overcoming disparities in levels of living among the countries, now considered industrialized unless of course much higher growth rates were to be realized.

2. CHANGES IN STRUCTURAL PATTERNS

In the course of economic development profound changes have taken place in the structure of output, employment and demand. The study of these changes has served to focus attention on a number of important questions. Should economic development centre

⁹The Soviet Union, some of the Eastern European countries, Italy, Yugoslavia, Japan and China seem to provide illustrations.

on agriculture or industry ? How high should be the growth rates of each of these sectors ? Are there any ceilings to their eventual expansion ? Are there any fixed relationships or ratios which may be used as rules of thumb between their growth rates ? What kind of industries should be established in the beginning ? How should the structure of industry alter in the course of development so as to assure uninterrupted growth ?

At the time when economic development of a country was largely the result of actions of individual entrepreneurs, these questions had practically no relevance. The answers to them were given by trial and error. An entrepreneur pursued the lines where prospects of profits were most promising. Some ventures succeeded, others failed. Guided by the "invisible hand," underlined by Adam Smith, these individual actions led to varying degrees of economic development in different countries.

But now, many countries are setting up planning agencies, committees and other organizations to chart in advance the course of national economies. They are setting concrete goals and targets and trying to guide their economies toward them. Working answers to the questions posed above have now assumed considerable operational significance. If these answers correspond reasonably well to the economic structure of the country and the requirements of its future economic growth, they could help avoid the losses and delays involved in the trial and error approach. Economic growth could consequently avoid the frequent ups and downs which were its characteristic features in the past. It could be perhaps quickened also.

This section attempts to study the changes in the structure of output in the industrial countries over the last century of their transition and on the basis of a comparative analysis of the structures prevailing at present in various countries at different stages of economic growth.

(a) Changes in the Share of the Service Sector

One of the most remarkable feature of economic growth relates to the share of the service sector in total output. The long-term trends in this share are mixed. In some countries where it was fairly high in the initial period, it fell; in others where it was

low, it rose.⁶ These long-term trends are remarkably consistent with the evidence that can be obtained from a cross-section study of a much larger number of countries. The countries are classified into seven groups by per capita income in 1949 or 1952/54 in US dollars, the countries with the highest per capita income being in group I and those with the lowest in group VII.

If the service sector is broken down in details, it is seen that the output of the transport and communications sector is closely associated with that of the industrial sector,⁷ whereas the shares of trade and commerce exhibit an absence of any significant correlation with the changes in per capita income. Because of the close association of the transport and communications sector with the industrial sector, it is more meaningful to add this sub-sector with the industrial sector. The data in Table 2 are based on such an adjustment. As can be seen from the Table, the adjusted share

⁶ See the observations by Prof. S. S. Kuznets in this connection: "In six countries (the United Kingdom, Germany, Netherland, Norway, Sweden and the United States) the share of the Sector declines. In Japan, according to one estimate, it rises, and according to the other, it declines; and I have no grounds for preferring one estimate to the other. Finally, in seven countries (France, Italy, Hungary, Canada, the Union of South Africa, Australia and New Zealand) the trends in the share of the sector are definitely upward. In the countries in which the share of the sector declines, the initial levels are quite high: over 40 per cent, and in several cases over 50 per cent—except in New Zealand, Australia and the Union of South Africa where they are 35, 45 and 50 per cent, respectively. For the present we have no explanation of these differences of the shares [in the initial period]." Kuznets, S. S., "Quantitative Aspects of the Economic Growth of Nations, II, Industrial Distribution of National Product and Labour Force," in *Economic Development and Cultural Change*, Supplement to Volume V, No. 4, July 1957, p. 70.

⁷ Net value of transport and communications sector is closely associated with the output and employment in industry.

TRANSPORT AND COMMUNICATIONS AS PERCENTAGE OF OUTPUT AND EMPLOYMENT IN INDUSTRY

	I	II	III	IV	V	VI	VII	I+II	III+IV	V+VI+VII
Output	25	24	29	28	34	25	24	24	28	25
Employment	21	22	21	19	18	21	17	21	20	19

SOURCE : Table 2

TABLE 2
OUTPUT, EMPLOYMENT AND PRODUCTIVITY IN COUNTRIES AT VARYING LEVELS
OF PER CAPITA INCOME

Item	Group ^a of countries by product per capita							Wider groups		
	I	II	III	IV	V	VI	VII	I+II	III+IV	V+VI+VII
<i>Percentage shares</i>										
<i>Output</i>										
1. Agriculture	13	17	19	30	35	43	54	15	25	46
2. Industry, etc. ^a	48	52	38	31	33	22	17	49	34	22
	—	—	—	—	—	—	—	—	—	—
Total 1. and 2.	61	69	57	61	68	65	71	64	59	68
3. Service	39	31	43	39	32	35	30	36	41	33
<i>Employment</i>										
1. Agriculture	14	23	28	51	50	57	61	19	39	56
2. Industry ^a	49	43	37	25	26	20	18	46	31	21
	—	—	—	—	—	—	—	—	—	—
Total 1. and 2.	63	66	65	76	76	77	79	65	70	77
3 All other services	37	34	35	24	24	23	21	35	30	23
<i>Productivity rates for total output=100</i>										
<i>Productivity ratios</i>										
1. Agriculture	92	74	69	59	71	74	89	81	64	81
2. Industry ^a	97	121	102	125	125	112	96	103	110	106
	—	—	—	—	—	—	—	—	—	—
Total 1. and 2.	96	104	88	80	90	84	91	100	84	88
3. Services	107	92	122	161	132	154	142	100	137	144
Total output	100	100	100	100	100	100	100	100	100	100

SOURCE : Based on data in Kuznets, S.S., *Six Lectures on Economic Growth*, Glencoe, 1959, p. 45

^a Countries are grouped according to per capita income as follows . I-\$1,700 ; II-\$1,000; III-\$650 ; IV-\$400 ; V-\$270 ; VI-\$200 ; VII-\$100. The *per capita* income estimates are based on current prices, averages for post-World War II years.

^a Including transport and communications, the output of which usually rises in line with that of industry. Also see text.

of the service sector does not show any positive correlation with the per capita income. The right hand side of the Table, where the 7 groups of countries are combined into 3 wider groups, shows that the share was 33 per cent of the total output in the countries with low per capita income and 36 per cent in those with high one; it was 41 per cent in the intermediate group. Thus, contrary to popular belief, there is no positive correlation between the share of the service sector and the level of per capita income. The relationships in the Table suggest that the adjusted share (excluding transport and communications) lies roughly between 33 and 36 per cent, whether the country is very poor or very rich. The degree of economic development thus has only a marginal effect on the share of this sector in total output.¹⁰

The relative stability of the share of the service sector in total output irrespective of the stage and level of economic growth raises several questions of considerable theoretical and operational significance. On a theoretical plane, it is of great importance to analyse the reasons for such stability, though this can hardly be attempted here. But at an operational level, such stability offers a handy tool to economist working with fragile economic data in the developing countries. He can use these proportions as rules of thumb for estimating present national output or for outlining the possible course along which it might change over a number of years. Like all rough and ready rules, this too can be used only with caution.

(b) Changes in the "Productive" Sector

Since the share of the service sector (excluding transport and communications) as defined above, in total output remains relatively

¹⁰ Referring to trade, banking, other financial and remaining service divisions ranging from professional, personnel and business to government, Prof. S. S. Kuznets concluded: "Their shares in the national product are about the same in the high and in low income countries, in the developed and in the under-developed. The movement of the share of the T (transport and communications) division is very much like that of the share of the M (manufacturing and mining) sector." Kuznets, S. S., *Six Lectures on Economic Growth* (Illinois), 1959, p. 49; also his "Industrial Distribution of National Product and Labour Force," in *Economic Development and Cultural Change*, Supplement to Vol. V, No. 4, July 1957, p. 70.

stable, it is obvious that the share of the other sectors together also remains relatively unchanged during the process of economic growth. These sectors comprise agriculture, industry and mining and transport and communications. Since the output in transport and communications sector is included in this group, it is not quite correct to call it "commodity sector". It resembles conceptually what is defined as the "productive" sector (except for distribution services) in national accounting in the centrally planned economies. Such a broad division of national output incidentally provides a useful tool for delimiting those sectors in the western concept of national accounting which are comparable to the net material product in the centrally planned economies.

When the components of the "productive" sector are broken down in detail (see Table 2), there is, with a rise in per capita incomes, a marked change in the relative share of agriculture on the one hand, and industry, transport and communications on the other. Within the "productive" sector, agriculture accounts for over 75 per cent of the total output in countries with the lowest per capita income. As an economy becomes more industrialized this share shrinks below 25 per cent, and that of industry, transport and communications correspondingly rises over 75 per cent.¹¹ Almost a complete reversal of the relative shares of these two sectors appears to be the most crucial indicator of economic transition. Thus the most significant difference in sector shares in output in countries at various stages of development lies *within* and *not outside* the "productive" sector.

The ratios of agricultural output to that of industry, transport and communications, shown below, can serve as a unique indicator of the stage of economic growth of a country and the level of its per capita output. There is no other indicator which can serve this purpose more clearly. It is in this sense that industrialisation is the embodiment of economic growth. The so-called

¹¹ Countries such as Canada, Denmark, Australia and New Zealand may appear as exception to this statement mainly because of the fact that they are the preferred agricultural producers for industrial countries such as the United Kingdom and Germany. Even in these major agriculture exporters, however, the ratio of agricultural output to that of industry, transport and communications varies from 0.2 to 0.5, or not much different from that in countries with high per capita incomes in group I to III in the text table.

under-developed countries are thus in reality pre-industrial countries.

RATIOS OF AGRICULTURAL OUTPUT TO THAT OF INDUSTRY, TRANSPORT AND COMMUNICATIONS

Country groups	I	II	III	IV	V	VI	VII	I-II	III-IV	V-VI-VII
Ratio	0.3	0.3	0.5	1.0	1.1	1.6	3.2	0.3	0.7	2.1

SOURCE : Table 2.

The changes in the shares of these two sectors provide the basis for estimating the rates at which these sectors have developed over the last century in the industrial countries. These estimates are subject to a considerable margin of error. They should only be treated as a rough and ready indicators (see note to Table 3). It appears that industrial output in the industrial countries has increased at 3.5 per cent per year for the last 110 years. The growth rate is thus roughly $2\frac{1}{2}$ times as fast as that (1.4 per cent per annum) of agricultural output. These rates relate to total and not to per capita output. On the latter basis, industrial output has increased 5 times as fast as agricultural output.

ANNUAL COMPOUND RATES OF GROWTH IN PERCENTAGES, 1850 TO 1960

	Total output	Per capita output
Agriculture	1.4	0.5
Industry	3.5	2.6

SOURCE : Table 3

At these growth rates, the per capita availability of agricultural output has risen by only 70 per cent in the industrial countries over the last century, but that of industry by as high as 15 times. The probable growth of agricultural output has a ceiling beyond which it is less likely to expand. On the other hand, there is no such ceiling to the expansion of industrial output. The main content of economic development is thus the profound transformation of an economy brought about by a vast expansion of industrial output. These growth rates may have some relevance in outlining the pace at which these two major sectors may be planned to develop in the pre-industrial countries.

TABLE 3
CHANGES IN THE STRUCTURE OF OUTPUT IN INDUSTRIAL COUNTRIES
1850 to 1960

Output by industrial origin	Total output		Per Capita output		Index number 1960 output		Annual compound rates of growth in percentages, 1850 to 1960	
	1850	1960	1850	1960	Total	Per capita		
	billion US \$		US \$		1850=1		Total	per output capita
	In 1960 prices							
Agriculture	14	65	70	120	4.7	1.7	1.4	0.5
Industry ¹² Total	6	265	30	480	44.0	16.0	3.5	2.6
of which								
Heavy Industry	2	175	(10)	(320)	88.0	32.0	4.2	3.3
Light Industry	4	90	(20)	(160)	22.0	8.0	2.9	2.0
Commodity output	20	330	100	600	16.0	6.0	2.6	1.7
Others Sectors	15	330	70	600	22.0	8.6	2.9	2.0
Total output	35	660	170	1200	19.0	7.1	2.7	1.8

SOURCES AND METHODS Based on Surendra J. Patel's "Economic Distance between Nations : Its Origin, Measurement and Outlook", in the *Economic Journal*, March 1964, Table 1 ; excluding the centrally planned economies.

NOTE The figures are approximate estimates, derived by using the changes in the shares of these sectors and index-numbers of long-term growth. They should therefore be treated as orders of magnitude rather than precise statistics. The estimates for 1850 are based on assuming the shares of agriculture and industry in total output to be 40 and 16.6 per cent respectively, those of heavy and light industry in total industrial output to be one-third and two-thirds respectively. The assumptions correspond to rough summation of output structures of the industrial countries at various points of time during the nineteenth century and their approximate regression to 1850.

¹² Including mining.

(c) *Changes in the Structure of Industrial Output*

Since industry (and transport and communications) emerged from the analysis above as the most significant indicator of economic growth, it would be of some interest to examine the trends in the rate of growth of the overall industrial output and the changes in its structures. An analysis of economic growth over the last century points to two broad features. one, there is an absence of a decline in the per capita rate of growth in industrial output as a given country reaches much larger volume of output, and secondly, there is a marked prevalence of a progressive rise in the rate for each of the new entrants into the field of industrialization.¹³

Whether a particular industry develops in a particular country or not, and the rate of its growth are by and large conditioned by the endowment of natural resources and the vigour of the policy of industrialization in that country. But if the hundreds of industries are grouped together into some broad categories, it may be possible to see whether the pattern of their evolution shows a fair degree of uniformity. Such broad classification has usually been made in terms of consumer and producer goods, group I and group II, or heavy manufacturing and light manufacturing. Although neither of these definitions is fully satisfactory they all, broadly speaking, refer to nearly identical industrial groups.

In nearly all the major industrial countries, heavy industry has expanded over a fairly long period one and a half to two times as fast as the light industry.

The share of light industry in industrial as well as total output has, as a result, continued to fall and that of the heavy industry to rise. In the early phase of industrialization consumer goods or the light industry accounted for two-thirds or more of total industrial output. But owing to a relatively low rate of its growth (see Table 3), its share fell to a point where the initial relationship was completely reversed—from two-thirds or more of the industrial output in the early phase to one-third or less of the total in the advanced stage of the industrialization. Only when industrialization had reached a fairly high level, the disparity in the rates of growth in both these sectors narrowed down significantly

¹³ See Patel, Surendra J., in *Economic Development and Cultural Change*, Vol. IX, No. 3, April 1961.

with the heavy industry expanding only a little faster than the light one.

RATIOS OF THE RATE OF GROWTH OF PRODUCER GOODS TO
CONSUMER GOODS OUTPUT

	Ratio		Ratio
<i>Great Britain</i>		<i>United States</i>	
1812 to 1851	1.3	1880 to 1900	1.6
1851 to 1881	1.9	1900 to 1927	1.4
1881 to 1907	1.3		
1907 to 1935	1.5	<i>Italy</i>	
<i>France</i>		1896 to 1913	2.5
1861-65 to 1896	2.7	<i>USSR</i>	
1896 to 1921	over 2	1928 to 1940	1.8
<i>Germany</i>		1943 to 1955	1.5
1860 to 1880	2.2	1958 to 1965	1.3
1880 to 1900	1.5	(plan)	
1900 to 1913	1.5		

For sources, notes and methods, see Patel, Surendra J : "Rates of Industrial Growth in the Last Century, 1860 to 1958", in the *Economic Development and Cultural Change* (University of Chicago), April 1961.

An approximate idea of the magnitude of the increase in these two sectors in the industrial countries may be obtained from Table 3. Over the last century, the net value of industrial output in 1960 prices has increased from \$6 billion to about \$265 billion or 44-fold, that of heavy industry from \$2 billion to \$175 billion or 88-fold, and of light industry from \$4 billion to \$90 billion or 22-fold. This general pattern of industrial growth—heavy industry expanding one and a half to two times as fast as light industry in the early phase of industrialization, and the gap between their growth rates narrowing later—appears to have been a characteristic feature in nearly all the industrial countries. It is neither a Marxist dogma nor a capitalist taboo. It is simply the central feature of industrial growth everywhere.

Interestingly, the share of light industry in national output in the industrial countries has changed but little in the course of the last hundred years. It has barely risen from 12-13 per cent in 1850 to 13-14 per cent in 1960. On the other hand, the share of heavy industry in over-all output has increased during this period from about 6 per cent to over 26 per cent. Thus, the essence of structural

transformation during economic transition consists of a near constancy in the share of the service and light industry sectors, a marked decline in that of agriculture and an equally marked rise in that of heavy industry. In terms of growth rates, the service and the light industries have expanded only slightly faster than over-all output; the growth rate of agriculture was one-third lower than of over-all output and that of heavy industry nearly two-thirds higher. The heavy industry thus emerges as the most dynamic sector of the economy during the process of its transition.

This long-term feature is also borne out by the evidence for the recent period. After analysing the growth rates of these two sectors for various periods between 1938 and 1958 and for various groupings of countries a recent United Nations study concluded :

"Among the manufacturing industries of the world, the heavy goods industries.... made the greatest gains in output between 1938 and 1958 and during each of the three periods into which these twenty years have been sub-divided. This was also the case, in general, for each area of the world and each class of degree of industrialization... Between 1938 and 1958, the volume of production of heavy manufacturing expanded twice as fast, in general, as the output of light manufacturing.... In the world as a whole, for example, average rates of growth for heavy and light manufacturing were about six and three per cent per year respectively." ¹⁴

A more rapid growth of the heavy industry than of the light one appears on close examination to be only a common sense proposition. In the very early phase of industrialization the heavy industry is the least developed sector. Its output is small. But as economic development proceeds, the share of investment in total expenditure and of the machinery and equipment component in investment usually rises. There is thus a need for a relatively more rapid expansion of the supplies of producer goods. Moreover,

¹⁴ United Nations, *Patterns of Industrial Growth, 1938 to 1958*, (New York, 1960), p. 33; also see Hoffmann, W., *British Industry, 1700-1950*, (Oxford, 1955), p. 73 and *The Growth of Industrial Economies*, (Manchester, 1958), pp. 2-3, 8-17.

during the process of industrialization, the output of a whole new series of intermediate goods such as cement, fertilizers, various chemicals, plastics, etc. rises. These goods are not directly bought by the consumers. Their output represents a proliferation of the industrial base—an important element in the spread of division of labour and specialization. As a result, the share of heavy industry in total industrial output generally increases in all countries, large or small.

3. CAPITAL FORMATION AND RATE OF ECONOMIC GROWTH

A study of capital formation in many countries in recent years (cross-section analysis) and over a period of time (trend analysis) in the same country brings out a number of important features.

(a) The share of capital formation is weakly and irregularly associated with the level of per capita income. The differences among countries in this share are narrower than what the estimates of elasticities of savings derived from family budget studies would suggest. The per capita income in the industrial countries is 10 to 20 times higher than in the pre-industrial ones. But the shares of capital formation in gross national output range from 10 per cent in the former to about 20 per cent in the latter.

(b) Over the long run the share of capital formation in total output has increased, though not continuously. In most countries, it rose during the course of about two decades with minor changes in the periods preceding and following these decades. The rise in this share did not always precede the rise in the rate of growth of output. In some countries, the sequence was the reverse of this—rise in the rate of growth of output was followed by an expansion of the relative share of capital formation. Moreover, once its share in total output reached about 15 per cent on a net and 20-25 per cent on a gross basis, it remained stabilized at this level.¹⁵

(c) Where raising the rate of investment led to, or was associated with, a rise in the growth rate for the economy, the choice was nowhere really posed over a period of time whether to increase consumption or investment. The higher the rate of investment

¹⁵ These features were pointed out by Prof. S. S. Kuznets in his study "Long-term Trends in Capital Formation" in *Economic Development and Cultural Change*, IX, No. 4, part I, July, 1961

and the higher the growth of output, the faster was everywhere the expansion in consumption. One of the hobby-horses of many economists and policy-makers is the oft-repeated reference to the need for reducing consumption in order to raise investment, or for "tightening the belt".

This belief is founded on a misunderstanding of the difference between economic relationship at a point of time (static basis) and over a period of time (dynamic basis). To put it simply, the relationship between consumption and investment is inverse at a point of time but direct over a period of time.¹⁶ The emphasis given to the inverse correlation between consumption and investment at a point of time is therefore, logically speaking, meaningless. When it is said that if investment rises consumption falls, the reference is no longer to a point of time but to a change over a period of time. But over a period of time, the correlation between investment and consumption is direct rather than inverse because of the fact that the rise in investment works towards raising the rate of overall economic growth and thus bringing about the rise in consumption.

If a fairly rapid increase in both agricultural output by the introduction of technical advances and industrial output (especially of consumer goods) by fuller utilization of capacity is attained, the problem of raising investment so as to attain a more rapid growth is not difficult to tackle. In an economy where a higher level and more "efficient" allocation of investment leads to faster growth of national output, both consumption and investment can in the years to follow rise faster than in an economy where investment is simply maintained at the existing low level or has an "inefficient" allocation. This may appear a perverse position to the adherents of what Prof. Galbraith called "conventional wisdom". But in essence, it is simple. On the static view, investment pre-empts part of the available resources; but on the dynamic view it adds to future resources. Consequently, the larger the rise in investment, the larger the expansion of resources avail-

¹⁶ For a detailed theoretical formulation of these relationships, see Patel, Surendra J., "Savings, Investment and Economic Growth: A Dynamic Approach", in the *Indian Economic Review*, August 1959; also *Economic Survey of Europe in 1959* (U. N. Economic Commission for Europe, Geneva), Chapter VII. pp. 28-29.

able for ultimate consumption. The relation between the two is the reverse of that at a point of time. As output rises, part of the expanded resources can thus be devoted to productive investment in order to sustain growth, even when the initial level of per capita income and saving is low.

(d) The evidence for secular trends in incremental capital output ratios (ICOR) is limited to only a few countries. The periods vary and the conceptual problems connected with the definition and estimates of capital formation are rather formidable. Moreover, capital formation has historically been a much more volatile sector of the economy than any other. Consequently, the use of incremental capital output ratios for a severely limited period, such as for five to ten years, usually requires a great deal of caution in interpreting the significance of the limited evidence. And yet, the ICOR is now being very widely used for analytical and operational purposes. It is therefore of some significance to review the empiric evidence.¹⁷

The ICOR works out at 3.6:1 for the OEEC countries as a whole for the period 1948-1958, but if the last two years of slow growth are excluded it is 3.1:1. The ECLA has estimated it to have been 3.1:1 for the Latin American countries during 1945-1952; for the period 1950-1956 when the expansion in national output slowed down gradually, the ratio rose to 4.1:1. It ranged from 2:1 in Greece to around 3:1 in Turkey and Yugoslavia and 4:1 in southern Italy and Ireland in varying periods between 1948 to 1959.

The concepts of income and also of capital formation to some extent are different in the centrally planned economies from those in the private enterprise economies. The ICOR for these countries are therefore not strictly comparable. In Eastern Europe and the Soviet Union the ICOR has varied from 2:1 to 3:1 between 1950 and 1954 or 1955. For mainland China, it has been estimated to be 2.2:1 between 1951 and 1957.

Longer-term data are available for only a few countries. The ICOR was 3:1 for nearly half a century (1879-1929) in the United States. For 30 years (1896-1929) in Sweden it was 3.3:1.

The evidence is far too inadequate to indicate a definite long-

¹⁷ The data presented below are from the *Economic Survey of Europe in 1959* (UN Economic Commission for Europe, Geneva), Chapter VII, pp. 45-46.

term trend or to suggest, *a priori* any given ICOR as suitable for a particular country at a particular time. It is influenced very much by the economic and institutional conditions in the country. The experience of a number of countries, however, suggests that the ratio ranges between 3:1 to 4:1 ; and it has rarely been over 4:1 (except in periods of very slow economic growth)

There is another feature which is of considerable operational significance. Broadly speaking, a relatively high rate of growth has been usually associated with a low ICOR. The factors that explain this causal association, or the manner in which it can be influenced, are beyond the scope of this paper. But it is important to suggest that a more rapid rate of growth, however attained, is associated with, or even leads to, a more efficient use of each unit of the existing and growing capital assets. In the context of a relatively rapid expansion of output, the marginal productivity of each additional unit of investment is, contrary to widespread notions on the subject, generally higher (and not lower) than the average one.

PART V

ECONOMIC OUTLOOK FOR OUR CHILDREN

ON THE EVE OF THE THIRD PLAN*

A FEW important indicators of the economic advance in the last decade in India may be given. Overall income is estimated to have increased by about 40 per cent. Per capita income has risen by 20 per cent, or about 2 per cent per year. The Government, however, made a larger draft on private incomes in the form of loans, additional direct and indirect taxes and deficit finance. There may also have been a slight rise in personal savings. When allowance is made for these, personal consumption might have increased by over 10 per cent during the decade, or about 1 per cent per annum. There are no firm data to compare present per capita income with the real pre-war level. A few indicators of output, however, suggest that the post-war recovery in India was slow. By only about the mid-fifties, the real pre-war level was reached. The small rise in real per capita income thereafter suggests that at the start of the Third Five Year Plan it was no more than 5 to 10 per cent higher when compared with pre-war years—that is, over 20 years ago.

Over the last century, per capita incomes in India changed but little. Some estimates show that the real level actually fell. Even the more liberal estimates of Shri M. Mukherjee place the annual rate of per capita growth at about 0.4 per cent. Only two decades (average of 1871-79 to 1881-89 and of 1901-09 to 1911-19) had an annual rate of increase in per capita incomes of about 2 per cent, or the same as in the last decade of planned economy in India. If Mukherjee's data are accepted the achievements in the last decade were indeed superior to those of the century as a whole, but not much different from those of the two earlier decades mentioned.

INDIA IN WORLD SETTING

The economic landscape of the world at large, however, changed beyond recognition in this period. At the start of the nineteenth century the per capita level of living in the major European countries

* Reprinted from *Economic Week*, Annual number, February 4, 1961.

was not much higher than in India. But the translation of technical inventions into industrial plants laid the foundation for a rapid rise in levels of living in these countries. Most of the industrial countries of to-day attained an annual rate of growth of about 2 per cent in per capita output. Consequently in a century and a half, in which India almost stagnated, these countries increased the economic well-being of their average inhabitant some seven to ten-fold. The wide disparity that we now find in the levels of living in many of the less industrialized countries, such as India, and the industrial countries of the world appeared in this century.

The knowledge of our own backwardness and the high potential for development came to form the basis of the desires, intentions and plans of the poor countries to narrow this gap as rapidly as possible. To attain an annual per capita rate of economic growth significantly above that in the richer countries came to be accepted as the test of economic success for the countries that were left behind. With all the vast treasure-house of technological knowledge that is awaiting assimilation, the pace of our advance in the last decade has been no higher than that at the dawn of economic growth in the present-day industrial countries a century ago.

IN THE FIFTIES

Coming to more recent times, the fifties were a period of unparalleled rapid economic growth in many countries of the world. After a decade of depression in the thirties and a destructive war thereafter, there was a tremendous economic spurt. Pre-war levels of living were surpassed in the late forties or early fifties and nearly doubled by 1960. Germany, Japan, Italy and France in the western world and most of the countries in the socialist world attained an average annual rate of economic growth of 6 to 10 per cent. On the other hand, the countries which were the richest—United States, Great Britain and Denmark—in the pre-war world, advanced slowly. India together with many other poor countries had the doubtful privilege of being in the caravan of the slow-moving rich.

In the decade that has just come to an end, the economic distance that separated India from most of Western Europe, Eastern Europe, Soviet Union, China, and Japan has lengthened rather than narrowed. The task, yet not begun, is to reverse this tendency.

With this sobering fact in the background, we may become less effervescent about our successes and more concerned about our future.

THIRD PLAN DRAFT OUTLINE

The *Draft Outline*, running into 100,000 words, sets out the main targets and lines of policy for the Third Plan period. In many respects, the Third Plan resembles the Second. Both aim at an increase of income by about ("over" in the Third Plan) 5 per cent per year, although the actual attainment in the Second was a little over 3 per cent. There is, however, a crucial difference. Agricultural output in the Second Plan was to rise by only 18 per cent, while in the Third, the projected expansion is 30 to 33 per cent (p. 32).

Even when the Third Plan counts on an increase in agricultural output by 6 per cent per year, it is odd indeed that its expectation for over-all income rise is for only "over" 5 per cent per year. The inconsistency is more puzzling when it is planned to raise industrial and mineral output by 80 per cent (pp. 39-40), and production in small-scale industries by 35 per cent (chapter 10). With the given targets of rise in rail freight transport by 45 per cent (p. 243), motor transport by 80 per cent (estimate) and outlay on social services by 45 per cent (p. 27), the rest of the economy (professions, other transport and commerce, other government branches, domestic service and house rent) will have to mark time—that is, show no increase over the Third Plan period—in order to accommodate the sectoral targets in the over-all income target.

SECTORAL TARGETS INCONSISTENT

The inconsistency is just as apparent if targets are analysed from the expenditure side. Investment will be rising by 50-55 per cent (p. 25) and about 70 per cent of consumer expenditure (that is, nearly the whole of expenditure on commodities as given by increases in consumer goods originating in agriculture and organized and small-scale industries) by 35 per cent. Consumer expenditure (including government) on the non-commodity service sector would have to stay unchanged throughout the Plan period, if the over-all

target for national product is to be consistent with the sectoral target! Obviously an unreasonable assumption!

This inconsistency between the sectoral targets and the over-all target is also reflected in the thinking on price policy. Against an officially given over-all rise in income of about 30 per cent, the foodgrains output is to be pushed up by 33 to 40 per cent *plus* guaranteed imports under PL 480, and yet the major concern appears to be with a general rise in the price level, led by foodgrain prices (pp. 14-15). *The demand for foodgrains is surely not going to rise by more than the rise in income!* The price prospect consistent with the sectoral and over-all targets is for a disastrous fall in foodgrain prices and not a price rise. The foodgrain target, the over-all income target and the thinking on price policy can hardly be comfortably accommodated in the same document.

HIGHER GROWTH RATE ATTAINABLE

The difficulty of increasing the supply of consumers goods has always been the most serious stumbling block for all planning authorities wanting to raise the level of investment. If now in India we can raise the supply of the major consumer goods by 35 per cent, or between 6 to 7 per cent per year (as is implicit in the sectoral targets), we should be blamed for timidity—not audacity—if we cannot plan to increase over-all income by much higher than 30 per cent—say, by 40 to 50 per cent, or an annual rate of 8 to 9 per cent. When this is done, India would have taken, conceptually at least, a big step forward. The task then would be to work out adequate policies that would assure attainment of this pace.

One may fear, however, that the internal inconsistencies in the Plan may be ironed out, not by raising the over-all income target, but by reducing the present high targets for the expansion of consumer goods supplies. In that case, the Third Five Year Plan will fit in well with the slow-growth of the last ten years. The task of raising the rate of growth of our economy above that in the other industrial countries, in order to overcome rapidly poverty and squalor and to reduce the economic gap that separates us from the industrial countries, would in that case, not have begun even by the end of the Third Plan.

WHAT DIFFERENCE IN GROWTH RATES MEANS

While it is realized that an annual rate of growth of 8 to 9 per cent is higher than that of 5 per cent, the real significance of the difference between the two may not be readily apparent. The small table below may help towards a proper assessment of the difference.

<i>Annual Rates of Growth Per cents</i>			<i>Percentage Increase in per Capita Output in</i>	
<i>Total Income</i>	<i>Population</i>	<i>per capita Output</i>	<i>20 years</i>	<i>40 years</i>
5	2	3	80	230
8	2	6	220	930
9	2	7	290	1400

At a rate of growth of 5 per cent per year for the economy, per capita income would rise by 80 per cent in 20 years and by 230 per cent in 40 years (assuming an even rate of growth in population of 2 per cent per year). For the same periods, however, the expansion in per capita incomes would be 220 and 930 per cent at 8 per cent per year and 290 and 1400 per cent at 9 per cent. If we take a 40 year view, at an annual rate of growth of five per cent our average level of living would be over three times as high as at present; that is, by the end of this century, it would be no higher than the level now prevalent in the poorer areas of Southern Europe and most of Latin America. But on the assumption of 9 per cent rate of growth, it will be 15 times as high at the end of the century as to-day, or about the same or a little higher than in most of the highly industrialized countries of north-western Europe. A higher rate of growth can, therefore, be hardly regarded as merely a matter of arithmetic or of purely academic concern.

ITS PRIMA FACIE FEASIBILITY

Nobody would dispute the desirability of having a higher rate of growth. But there will always be plenty of arguments about the possibilities of attaining it. An adequate answer to these argu-

ments would require much more space than can be devoted to it here. But three weighty considerations may be advanced here suggesting the *prima facie* feasibility of a relatively high rate of growth for India.

In the first place, the sectoral targets in the *Draft Outline* (income as well as expenditure flows) imply an annual rate of output growth of 7.5 to 8 per cent. That the *Outline* chose inconsistency is no argument against the feasibility of high rates. If the sectoral targets are attained, there would not be much need to worry about over-all income rise. It will be 7 to 8 per cent. Towards the end of this note, there is a brief discussion suggesting the lines along which the crucial target for foodgrains might be realized.

Secondly, and this is much more important, to ask for a closer examination of the possibility of a 5-7 per cent rate of growth of per capita income is not to indulge in science fiction now. In the nineteenth century, such a proposition, though considered interesting or fascinating according to taste, could have easily been dismissed by the sober-minded as the product of an imaginative but an unpractical mind. The most rapid rate of growth they knew was 2 per cent per capita per year in the advancing countries, and that was so much more than anything they had ever known in the past or in other countries of the world. These were uncharted oceans and the ordinary mortals do not set sail in them without a compass. But in the twentieth century, particularly in the last few decades, many countries in the world have attained such growth rates for varying periods. These high rates are taken for granted in most of the centrally planned economies, and West Germany and Japan provide striking illustrations in the private enterprise economies. In the light of this experience, examination of the feasibility of a high rate can no longer be dismissed on the ground that it is just too high.

Thirdly, it is an outrage against commonsense to suggest that the feasible rate of economic growth (per capita) can hardly be higher than that realized by the industrially advanced countries in the very early days of their economic growth—that is, a century ago. These countries could not advance faster than the pace of technological development. In the absence of an over-all planning organization, their pace often lagged behind that of technological progress. The situation today is fundamentally different. The ac-

cumulation of technological knowledge in industry, agriculture and other fields is vast indeed. Economic growth in the less industrialized countries is now, as it was never before, a function of their ability to draw on this treasure-house and assimilate the new techniques. In addition, there are now Planning Organizations which are expected to have a vision in their outlook and clarity and firmness in action.

HOW TO RAISE AGRICULTURAL YIELD

Since the foodgrains target is the most crucial and most likely to be reduced, it would be relevant to inquire whether an increase in foodgrain output by 33 to 40 per cent is attainable in five years. Yields of foodgrains per acre of land in India are among the lowest in the world. While this is a highly deplorable situation in terms of the supplies available to the population, it may be considered highly advantageous in terms of growth potential. Even if the yield of all foodgrains is raised from about 600 lbs. per acre as at present, to about 900 lbs. or by as high as 50 per cent, the average yield would still be among the lowest in the world. It would be only equal to yields which were common in most of north-western Europe in the middle of the last century (and which obtain in other under-developed countries at present). Since then, the application of modern techniques following from the development of the science of agro-biology, soil classification, chemical fertilizers and improved methods of farming in general, have raised these yields to 3000 to 4000 lbs per acre, or three to four-fold.

Despite all the investments in agriculture during the last two plans, the yields per acre in India have remained obstinately unchanged. Is it really because soils in India are so poor, rainfall so uncertain and farmers so conservative? The main reason, now slowly—very slowly indeed—finding acceptance was our own approach to agricultural growth. The lack of humidity (or inadequacy of rainfall) weighed so heavily on us that we spent more than one-half of agricultural investments on grand irrigation projects, designed "to change nature"; but very little was done—not even prayerful exhortations were made—in the first eight years

to raise yields on lands with assured rainfall or functioning irrigation. And such areas even at the start of the First Plan amounted to nearly 40 per cent of the total, and produced 60 per cent of domestic output. If the national effort were concentrated on these lands with assured humidity through widespread application of modern techniques and fertilizers, yields per acre could have been doubled. The total output from these areas alone would have supplied all the foodgrains we needed—and at lower cost. With income in agriculture thus raised, it would have been easier thereafter to attack the longer-term problem of assuring water to the other areas through a series of irrigation projects.

UPSIDE DOWN APPROACH

The approach to agricultural growth—and planning of investments in agriculture—has been conceived by and large upside down. In a poor country like ours, effort and resources were concentrated on the most expensive, long-maturing and slow-yielding projects. The quick-yielding and much less expensive method (provision of a combined sample of all ingredients needed to raise output at selected points and then spreading the new technique through demonstration of vastly superior results) was left to the mere oral propaganda of an obscure village worker. If preaching ever brought about salvation, India with her teeming millions of Sadhus and Fakirs spread everywhere would have attained it long ago.

That yield in agriculture can be raised very high and very rapidly without costly projects to “change nature” in the initial stage is amply demonstrated, for the benefit of the sceptics, in the experience of Yugoslav farming over the past six years. Average yield per acre for the country as a whole was raised from 1000 lbs. to over 2000 lbs., and in areas of concentration of effort (and that is what is really significant)—now extending to nearly 40 per cent of the total—it rose to 3500 lbs, that is, to the level now prevalent in the countries with the most intensive agriculture, such as Denmark and the Netherlands. In this rapid advance, irrigation played practically no role at all, though before 1954, as in India up to now, it was assigned a crucial role in raising

agricultural output.¹ Before blaming Indian farmers for their innate conservatism, it would help if the main lines of our approach to agricultural growth are dispassionately re-examined.²

¹ For a detailed analysis, see United Nations Economic Commission for Europe, *Economic Survey of Europe in 1959*, Geneva, 1960, Chapter VII and the Special Appendix to it.

² The main obstacles to rapid agricultural development are discussed in my recent study "What is Holding up Agricultural Growth" in the *Economic Weekly* (Bombay) Annual Number, February 1964.

ECONOMIC CONSEQUENCES OF DISARMAMENT*

THROUGHOUT the history of humanity, chiefs, kings, emperors and nation states have all relied on warfare to protect and, if possible, to expand their domination. Major advances in techniques have often found their first application in means of conquest—no less true today than at the height of the power of ancient Egypt, Sumer, China, India and Peru. The continuing reliance on weapons of warfare has now as never before reached the point of logical absurdity. Armaments in the arsenals of the major powers are capable of annihilating most of mankind. Realization that war between them could no longer serve as an instrument of national policy is spreading. And yet, arms are being piled up. Like the miserly person hiding under the floor the savings he would never use nor bequeath, nations are adding to an ever-expanding stock-pile of weapons even a small part of which is adequate to destroy all, including themselves.

There is now an accumulation of technical knowledge which in an outburst of half an hour of insanity could devastate almost all animate objects, the product of patient evolution over the ages. But if wisely utilized, it also has the potential to overcome in half a century the age-old afflictions of mankind—squalor, poverty, want and disease. Humanity is thus being steadily pressed to choose between half an hour of insanity or half a century of far-sighted international co-operation.

These mounting pressures were reflected in a resolution of the General Assembly of the United Nations in 1959.¹ In it, the question of disarmament was characterized as "the most important one facing the world today". It expressed the hope that "measures leading towards the goal of general and complete disarmament under effective international control will be worked out in detail and agreed upon in the shortest possible time". This urgency for

* Reprinted from the *Bulletin of Atomic Scientists*, October 1962.

¹ See *Official Records of the General Assembly, 14th Session, Supplement No. 16, Resolution 1378 (XIV)*.

disarmament symbolized the universal desire to assure human survival.

A disarmed world would presuppose political accommodation among nations. Continued heavy military expenditures have become almost an economic habit, acting like a tranquilizer for national nervousness born of insecurity. To re-deploy the resources now devoted to armaments would create important problems of adjustment for individuals, countries and the entire world economy. An advance study of these problems could therefore be of considerable help in overcoming the difficulties of, and in deriving the maximum benefits from, disarmament.

In pursuance of the General Assembly resolution 1516 (XV), a group of experts was appointed by the United Nations to study the problems of transition to a disarmed world. In its Report, *The Economic and Social Consequences of Disarmament*, the group was "unanimously of the opinion that all the problems and difficulties of transition connected with disarmament could be met by appropriate national and international measures."²

This unanimity of views was underlined by the Acting Secretary-General, U Thant, in his Preface to the Report. He stated "It is a source of profound gratification to me, as I am sure it will be to all governments, that, on a subject that has until recently

² United Nations, *Economic and Social Consequences of Disarmament*, Report of the Secretary-General transmitting the study of his Consultative Group, (New York, 1962), paragraph 195. For brevity, the document is referred to in this study as *The Report*.

The members of the group were: V. Y. Aboltin, Deputy Director, Institute of World Economics and International Relations, Academy of Sciences of the Union of Soviet Socialist Republics; Mamoun Beheiry, Governor, Bank of Sudan; Arthur J. Brown, Head, Department of Economics, University of Leeds, England; B. N. Ganguli, Head, the Delhi School of Economics, India; Aftab Ahmad Khan, Chief Economist, Planning Commission, Government of Pakistan; Oskar Lange, Chairman, Economic Council, Council of Ministers of the Government of the People's Republic of Poland; W. W. Leontief, Professor of Economics, Harvard University, United States; Jose Antonio Mayobre, Ambassador of Venezuela to the United States; and Alfred Sauvy, Director, National Institute of Demographic Studies, Government of France. Mr. Sauvy was represented at the meetings of the second session of the group by Paul Paillat, also of the National Institute of Demographic Studies.

This study draws heavily upon many of the findings of the Consultative Group.

been so beset by ideological differences it has now proved possible for a group of experts drawn from countries with different economic systems and at different stages of economic development to reach unanimous agreement."

1. MAIN FEATURES OF MILITARY EXPENDITURES

(a) *The Burden of Armaments*

A study of the economics of disarmament requires an assessment of the resources which are at present devoted to military expenditures. Owing to a number of limitations of data, such as the difference in the coverage of defence budgets, in comparative prices for equipment, in the scale of pay for armed forces, etc., it is not easy to assess them adequately. On the basis of the available data, the Consultative Group suggested that the world appears to be spending roughly 120 billion dollars annually on military expenditure.³ This is equal to about 8.9 per cent of the world's annual output, or to at least two-thirds of the entire national income of the under-developed countries. It is close to the value of the world exports of all commodities, and slightly lower than the total resources that are devoted to net capital formation in the whole world. Nearly 20 million men now serve in the world's armed forces. When other persons occupied directly or indirectly in servicing the needs of these armies are added to them, the total may well run over 50 million.

The volume of resources devoted to military expenditure during the last decade of relative peace is indeed impressive. The world has spent more on the instruments of international intimidation in this short period than on education since the beginning of the Age of Enlightenment three centuries ago. Total military expenditures in the last ten years amounted to nearly 1,200 billion dollars. This sum is about seven times the annual income and seventy times the annual net investment of the under-developed countries. As a rough and ready estimate, it may be suggested that if it were devoted to economic development of these countries, it could have raised the volume of their reproducible assets in industries and in the modernized sectors twelve-fold, and their

³ *The Report*, paras. 8-9.

total capital assets nearly threefold. Their annual *per capita* income could have been raised three times. Poverty could thus have become a pastime for the historians, and later for the archaeologists.

(b) Concentration of Defence Outlays

The heavy military burden is not spread evenly all over the world. It is concentrated in only a handful of countries, and within each of them in a limited number of sectors of employment and geographical locations.

The United Nations group of experts estimated that only seven countries—Canada, Western Germany, France, China, USSR, UK and the United States—account for nearly 85 per cent of them.⁴ At the other end of the spectrum, the under-developed countries are responsible for nearly 5 per cent of the world total. All of them together in fact spend for this purpose nearly as much as the United Kingdom alone. Military expenditures are, in fact, much more heavily concentrated in a few countries than world income or investments.

Among the major military powers, production as well as employment depending on military ends is also highly concentrated in a few industrial sectors—for example, munitions, electrical machinery, instruments and related products and transport equipment (including aeroplanes and missiles). More often than not such dependence is centered in a particular locality or region within a given country.

This heavy concentration of military expenditures in a limited number of countries, industries, and localities would have considerable significance in outlining the economic effects of disarmament. Once they are identified, it could facilitate the formulation of concrete measures that might be necessary to counteract the probable depressing economic impact of reduced military expenditures.

Most of the under-developed countries devote less than 4 per cent of their resources to military expenditures. A large part of these consists of payment of salaries and provision of food and clothing for the armies. The resources that these countries devote

⁴ *The Report*, para. 12.

to military hardware are relatively small. A significant portion of it is often financed from abroad. Disarmament would therefore have a relatively limited direct impact on the flow of physical output in these countries.⁵ In so far as some countries have to spend their own precious foreign exchange resources to import military equipment disarmament would enable them to transfer these to imports of much-needed capital equipment

2. THE EXPERIENCE OF POST-WAR DISARMAMENT

The elimination of armaments from national arsenals would obviously depend on political understanding among the major powers. But the man in the street is often concerned whether countries can really afford to disarm. This genuine concern symbolises the individual fear of losing a job without finding another. It focusses attention at a national level on the apprehensions about maintaining full employment in countries which might have become used to armaments as an economic drug. There is also an uncertainty whether the economic and political leadership which so readily allocates resources for military purposes would be equally willing, ready and prompt to divert them toward much more beneficial social and other ends.

An advance analysis of the problems involved in the process of transition to disarmed economies is therefore of considerable importance. This section is devoted to drawing on the experience of such transition at the end of the Second World War. This could set the stage for the discussion of the problems which countries with different economic systems and at different stages of economic growth would now face in the event of disarmament. For analytical convenience, the countries are grouped as (a) the private enterprise industrial economies, (b) the centrally-planned economies and (c) the industrializing countries of the world.

During the closing years of the last war, many countries devoted nearly half their resources to mutual destruction. The number of men in uniform and the real volume of military expenditure were four times as high as today. The destructive preoccupations of these years had left in their trail the terrible signs of sick humanity:

⁵ The influence of world disarmament on their exports is, however, a very important consideration, which is discussed later.

millions dead and mutilated; homes, hospitals and factories destroyed; productive assets paralysed; communications dislocated; the network of trade disrupted; currencies without confidence; and people in despair. And yet, huge armies were quickly demobilised with almost no rise in the level of unemployment. Plants producing armaments were rapidly turned to the output of articles of everyday use. The visible scars of war were soon healed.

The experience of conversion may be illustrated by some examples. In 1946 the military expenditure in the United States was reduced to just about one-fifth of the level of only one year before. Between August 1945 and June 1946, over nine million men gave up the army uniform for civilian clothes. In the United Kingdom, seven million persons engaged either in the army or in servicing it were released in a matter of sixteen months. But in both the countries a very rapid expansion of output for civilian purposes opened up sufficient employment opportunities so that unemployment, contrary to the predictions of many economists, increased but little. In continental western Europe, war, destruction and dislocation was much greater. Most commodities were in short supply. Inflationary pressures were severe. Confidence in currencies was shaken. But in eighteen months after the end of the hostilities, industrial output rose to the pre-war level nearly everywhere, except in Western Germany and Italy.

The Soviet Union and the Eastern European countries had suffered most severe human and material losses. Vast numbers of people were moved far away from their place of residence. Despite these incredible handicaps the pre-war level of industrial output was reached or surpassed by 1948.

The destruction, devastation and dislocation caused by the War was very severe. The total resources devoted to the War were far greater than at present. But the destructiveness of the War was more than matched by the resilience of the economies. This process of very rapid conversion has provided the countries with a very valuable experience. Referring to the measures adopted during the process of conversion, the United States government stated that :

"Tried measures such as these would be under active

consideration again in the event of the acceptance of a disarmament programme.”⁶

The ease as well as the rapid pace of the conversion at the end of the War was no doubt due to special circumstances. A decade and a half of the Great Depression and the War had created a vast backlog of demand for both consumption and investment. The liquid savings in hands of the population and enterprises were devoted to buying things as soon as they became available. The major concern of economic policy was to curb, rather than to maintain (let alone to stimulate), effective demand.

This particular difference in the early post-war and the present settings was sharply underlined by the recession which was associated with the reduction of about \$10 billion in military spending in the United States between 1953 and 1954. Governments are now aware that the special factors of post-War conversion are no longer present.⁷ It may be expected therefore that this awareness would prove conducive towards adopting effective measures, as discussed below, during future disarmament.

3. TURNING SWORDS INTO PLOUGHSHARES

Mankind's first step towards a disarmed world would not be like sailing in already charted waters. They would encounter a number of new problems while turning the swords into ploughshares. Attention may be drawn to three of them which merit advance study: (1) the maintenance of the over-all level of economic activity or, in more familiar words, avoiding a recession or a depression which would increase unemployment; (2) minimising and counteracting the adverse economic effects in particular in-

⁶ *The Report*, para. 63.

⁷ The Government of the United States, for instance, stated:

“Despite the mildness of the 1954 recession, it now is clear that fiscal and monetary policies might have been applied with more vigour. The reason they were not is that the decline in defence spending following the Korean War was not treated by the policy-makers as a major demobilisation requiring strong compensatory action. For this reason the 1953-54 period does not provide a significant guide to the behaviour of the American economy in a disarmament programme during the 1960s.” See *The Report*, para. 72.

dustries, localities or regions caused by the elimination of certain activities serving military uses ; and (3) overcoming the disturbance that a decline in the military demand for certain imported materials may cause to the economies which depend on them for their foreign exchange earnings.

In many respects economic growth of nations also involves a solution of problems which are not altogether different. Major advances in technology and changes in the level and the pattern of output and demand necessitate continuing re-allocation of resources of labour and productive equipment between occupations, industries and regions. Output of some industries expands while that of others contracts. Some regions, once prosperous, lose in importance and become economically depressed. The faster the growth of an economy, the easier it has been to carry out many of these adjustments. The economic impact of disarmament, while embracing similar phenomena, would be somewhat different because of two important considerations. Many of the problems that would be encountered in the process of conversion are now being studied in advance. International organizations, governments and individual research establishments are already outlining plans and programmes to cope with the dislocations that may arise. Secondly, and in a more important sense, disarmament would release vast resources, now employed towards destructive ends, to help surmount the problems it would create. Thus, disarmament in fact would facilitate overcoming its own dislocations.

(a) Avoiding a Recession

How would the reduction in military expenditures be carried out ? The answer to this question would, to a large extent, determine whether it would lead to a recession or give additional stimulus to economic growth. If reduction in military expenditures leads to a fall in over-all purchasing power, there is little doubt that it will reduce the level of economic activity and increase unemployment. But it would hardly be a tribute to the calibre of economic management if falling demand were to cumulate into a recession. On the other hand, if a reduction in military expenditure were balanced by an equivalent expansion of other forms of demand, there need be no shortfall in over-all demand. The offset-

ting expansion could take the form of increases in personal consumption, private investment and public expenditure for domestic ends as well as for foreign aid to the developing countries. The task of economic policy would be to ensure an expansion in other sectors which would offset the decline in military expenditures.

Since the Great Depression, considerable advances have been made in solving the problems involved in maintaining effective demand in the private enterprise economies. The United Nations group of experts, drawing attention to this aspect, stated in their Report :

"Member countries are pledged under the United Nations Charter to maintain full employment. A number of Governments have further undertaken, in national statements of policy, to adopt measures toward that objective. The instruments available for the prevention of any substantial fall of demand are well known. Their relative merits, however, vary widely from one country to another and from one time to another because of differences in institutions and attitudes" (paragraph 77).

The various instruments of policy that could be used to sustain the level of economic activity include the reduction of income taxes and indirect taxes on mass consumption goods, measures to stimulate investment, reduction of public debt, and expansion of government expenditure. Analysing the relative merits of these, the experts concluded that "disarmament need not therefore increase the difficulty of economic stabilization in the industrialized private enterprise economies" (paragraph 85).

In the centrally-planned economies, the major economic decisions concerning consumption, investment and public expenditures are coordinated through a central plan. The maintenance of the level of economic activity during the processes of conversion in these countries would therefore "be simply a matter of economic efficiency of planning techniques" (paragraph 91). One form of expenditure, for instance military outlays, could be substituted by other forms, such as investment, consumption, and foreign assistance. The precise manner of allocating resources among these forms would be determined by "the physical adaptation of plants

producing armaments to the production of goods for civilian use" (paragraph 92).

(b) Structural Problems of Conversion

Even when the countries succeed in maintaining the over-all level of economic activity during the conversion, there would be important problems of adjustments in specific industrial sectors and geographical areas. In some cases, the adaptation might be relatively easy : for instance, a shift from the production of tanks to tractors, of military to civilian aircraft, of naval vessels to merchant ships. The changes in the plant and equipment, and in the number and in the skills of the employees would be small in these cases. On the other hand, there would be instances where disarmament would necessitate major adjustments in the pattern of output and employment, in specific economic fields or regions. Many sectors of employment, such as the ordnance factories, the armed forces, etc. might be eliminated completely. The people employed in these would have to seek work in other sectors, often located at different centres. It would thus involve the movement of people to different locations.

Hypothetical estimates about the changes in employment called forth by complete disarmament, under various assumptions concerning re-allocation of resources, have been prepared for two countries—the United States and the United Kingdom.⁶ These calculations suggest that if the processes of disarmament were spread over a number of years "the change per annum would be only a fraction of the total". In countries with labour shortages, disarmament would release manpower for accelerating economic growth.

The group of experts also analysed a number of special problems arising from the concentration of military effort in certain sectors and areas. These related to adaptation of skills to peace-time requirements; problems of assistance to particular enterprises, industries and localities heavily oriented to military use and re-orientation of research and technological development. In general they were of the opinion that the resources released by disarmament would be so large that, given advanced planning and vigorous

⁶ *The Report*, Paras. 100-104.

policy, it should be possible to overcome these dislocations.

(c) Influence on Foreign Trade

Disarmament would reflect a lessening of international tensions and a rebuilding of confidence between the private enterprise economies and the centrally-planned economies. It would improve the economic relations between them and contribute to an expansion of trade. Higher economic activity in the wake of disarmament would also help expand the level of international trade in general.

An acceleration of economic growth would also stimulate the demand for primary products. But there might be cases where the fall in military demand for particular commodities would cause difficulties in some countries. Military expenditures account for a significant part of demand for many primary products, such as copper, tin, nickel, lead, zinc, petroleum, etc. Their prices are very sensitive to changes in demand. The combined unfavourable influences of a decline in the volume of demand as well as the prices for them could affect adversely those countries whose exports consist largely of these items.

Since the fall in military demand would be offset by a rise in civilian and other forms of public demand, the experts felt that disarmament would have only a small effect on the over-all demand for these commodities. Should particular difficulties be faced by some countries, however, they emphasised the need for special aid to them. They stated :

"For many of the countries mainly dependent on the export of primary commodities, a percentage decline in their export earnings which might appear small arithmetically, could cause grave damage. For example, a 6 per cent drop in their average export prices, were it to take place, would imply for the under-developed countries a decline in foreign exchange earnings equivalent to something like one-half of all official economic grants and loans currently received from abroad in a year. Recessions in activity in the industrial countries have caused declines of this order of magnitude in the recent past. Concerted international action would therefore be required to prevent any such decline in their prices and incomes of the

primary producing countries as a result of disarmament" (paragraph 135).

4. A DISARMED WORLD

What would be the economic image of a disarmed world? Its shape would largely depend on the alternative uses toward which the resources released from armaments are directed. Many of the most urgent needs of mankind have so far remained unsatisfied because precious resources have been turned to destructive purposes.

(a) Alternative Uses For Resources Devoted to Armaments

The resources released from armaments can be used for many purposes—such as raising the levels of personal consumption, expanding the stock of productive capacity, social investment and aid to under-developed countries. These claims are not only interlinked—in the sense that an increase in one is dependent upon that in another—but they are also competing. While disarming, it would therefore be necessary for each country to establish a scale of priorities based on its needs and consistent with the possibilities of satisfying them.

Since social investments have often given way to the claims of military expenditures, it is of some relevance to give an idea of the wide scope that exists in this field. After thousands of years of cold and dreary winter, the arrival of springtime of mankind—a century of the Machine Age—has so far helped raise levels of living in the industrial countries only. Most of mankind is still ill-fed, ill-clad, ill-housed and illiterate. Even in the richest countries of the world, there exist widespread deficiencies in the stock of social capital.

The National Planning Association estimated that to carry out the existing public programmes of development and improvement in the United States, the present public expenditure of about \$30 billion per year would have to be more than doubled—a vast sum indeed. Urban centres are expanding rapidly. In the Soviet Union, the housing problem remains acute. "The growth of the urban population in the Soviet Union during the past few years is

considerably in excess of the estimates."⁹ The conditions of urban living, as reflected in the existence of slums, bad housing, poor community services, delinquency, paralysis of city traffic, and inadequate sanitation in most places, are deteriorating.

The world's needs for development and conservation of natural resources are immense. It has been estimated for the United States that the water resource development alone would require Federal expenditures amounting to nearly \$55 billion up to 1980; non-Federal programmes would need as much as \$173 billion. Huge nature-transforming projects in various parts of the world are awaiting execution. In the under-developed countries many important multi-purpose schemes can be carried out if adequate resources were available.

Even in the richest countries, there is room for improvement of the medical and health services. In the rest of the world, they are simply inadequate. Mortality rates of infants and of pregnant mothers are high. Millions of people still suffer from diseases that are easy to cure or prevent. The Age of Enlightenment has so far seen its full fruition only in the industrially-advanced countries, and even there scope for expansion of higher educational facilities is wide indeed. More than half the population in the rest of the world is unable to decipher the magic of the written word.

Besides these, there are many other ventures that can be carried out adequately only through international co-operation of many countries. Audacious undertakings remain today merely paper plans because of lack of mutual confidence among nations and availability of resources. A few of them may be cited: a world-wide network of meteorological stations, telecommunications and air transport, utilization of atomic energy for peaceful purposes, space research to widen the horizons of the universe within man's reach, exploration of the Arctic and the Antarctic; control of desert locusts, which continue to devastate crops in Africa and Western Asia, through the establishment of highly mobile international brigades search into the earth's interior; and, above all, joint programmes to put an end to hunger and poverty.

Drawing pointed attention to the vast magnitude of the major needs of mankind that have so far remained unsatisfied, the United

⁹ Khrushchev, N., *Report to the 22nd Congress of the Communist Party*, (Cross Currents Press, New York, 1961), p. 118.

Nations experts concluded that "the resources freed by disarmament would not be large enough for the many claims upon them.. It seems abundantly clear that no country need fear a lack of useful employment opportunities for the resources that would become available to it through disarmament" (paragraph 51).

(b) *International Aid to Developing Countries*

Perhaps the most important advantage of disarmament would accrue to the developing countries. Until now they have benefited only marginally from the vast advances in modern science and technology. Two-thirds of the world population produce only about one-fifth of the world output. *Per capita* income in these countries is only one-tenth of that in the industrial ones. International attention and growing concern for their poverty has so far done little to narrow the economic distance that separates the rich and poor countries. The rate of growth of *per capita* output in the poor countries over the last twenty years has remained lower than in the rich. The economic distance has thus continued to widen.

To narrow this past gap, the growth rate of the poor economies has to be raised significantly above that of the rich. The United Nations experts emphasised that : "the responsibility for initiation and intensification of development efforts will continue to lie entirely with the governments and peoples" of the under-developed countries (paragraph 156). Many of these countries would be faced with grave shortages of foreign exchange if they were to embark on ambitious plans for raising the volume and the rate of capital formation in their economies.¹⁰

The flow of foreign assistance to these countries can be increased manifold once the industrial countries have eliminated armament expenditure. The United Nations experts, however, warned that "because the competing claims in developed countries are also urgent, there is a serious possibility that the financial resources released by disarmament might be rapidly absorbed by purely national aims. It is therefore desirable that an appropriate proportion of these resources should be allocated to international

¹⁰ See Patel, Surendra J., "Export Prospects and Economic Growth: India", in the *Economic Journal*, September 1959.

aid in its various forms simultaneously with their use for domestic purposes" (paragraph 55).

The impact of a large increase in international aid (as a result of disarmament) to the developing countries may be illustrated by a hypothetical example. If the total capital flow from the industrial countries, both in the east and the west, were to rise to \$15 billion a year, this would amount to a little more than 1 per cent of their combined gross national product. It would be a small share of what they spend at present upon armaments. But this sum is nearly twice as high as the total volume of machinery and equipment that is being imported every year in all the under-developed countries. Even if half of this sum were to be spent exclusively on expanding the imports of machinery and equipment in these countries, it would form a basis for doubling the present level of investment.¹¹

The influence of such a rise in investment on the growth rate of the economy would be perhaps more than proportionate, since a proper management of the investment plans often yields a relatively higher growth rate per each additional unit of investment. But even doubling of the growth rate would mean a rise from the present rate of about 3 per cent to 6-7 per cent. With population increasing at about 2 per cent per year, the *per capita* rate of growth would rise from just about 1 per cent to as high as 4 to 5 per cent. At this rate, *per capita* output in these countries could rise 7-10 fold in fifty years—or nearly equal to the present level in the industrial countries.

The diversion of even a small proportion of the resources devoted to war to assist the developing countries would provide the basis for a final solution of mankind's age-old afflictions of squalor, poverty, want and disease. As indicated earlier in this study, the choice is thus between half an hour of insanity or half a century of international co-operation.

¹¹ If the possible expansion in the import capacity and in the supplies of capital goods produced at home is added to this, the increase in the level of investment would be even greater.

ECONOMIC OUTLOOK FOR OUR CHILDREN*

THE dominant feature of the world around us is the vast difference in the levels of living in the rich and the poor countries. Under the pressure of the newly-independent countries to raise their level of living, considerable attention has been paid in recent years to the problems of their economic growth. But the gap between the poor and the rich countries has continued to widen. There is a growing despair and mounting frustration in the poor countries. It is often suggested that this gap is unlikely to be bridged—unless perhaps a miracle were to happen.

1. ECONOMIC GROWTH IN THE PAST

Let us examine this from a long-term world setting. What was the economic landscape of the world around the end of the 18th century? By then mankind had passed through nearly 6,000 years or more of settled history or what is called civilization. In its course, it had devised a number of tools. Many historians reckon the stages of mankind's evolution in terms of the materials from which these tools were made. There were roughly 2,000 years of the New Stone Age, the Bronze Age and the Iron Age. By the end of the 18th century, the world was in the last decades of the Iron Age. The steel and the machine-age was just beginning.

Many inventions had been made by the middle of the 19th century. But their adoption was restricted to Great Britain. Even there, except for the textile industry, it was only on a small scale. The horse and chariot were still the major means of communication. Propeller-driven ocean-going steamers were yet to appear. The steam locomotive which was to revolutionize transport had its first experimental run only in 1826. In 1850 the total length of railway network in the three of the most advanced countries

* Based on a lecture delivered during the Convocation Week at the Lucknow University in December 1961 and subsequently published in the *Indian Journal of Labour Economics*, Vol. V, No. 2, April 1962.

of Europe (the United Kingdom, France and Germany) was less than 20,000 kilometres—that is less than one-sixth of their network in 1900.

The output of pig-iron was only 4.6 million tons in 1850, half of which was concentrated in Great Britain. The technique of producing steel had hardly gone beyond the handicraft stage. The most advanced countries in the world were still in the last days of the Iron Age. Cast-iron could be used in rails, pillars, bridges, engine cylinders and even wheels but it had its limits. It was not suitable for the working parts of engines and machines. The steel age was yet to begin. The Bessemer converter was invented in 1856 and even with the advance made by the Martin-Siemens process (1864-1867) the total output of steel in the world was no more than 700,000 tons in 1870, or less than one-third of India's output in 1959. It is therefore only the last hundred years and not two or three centuries as has often been suggested which can be properly regarded as a century of machine-age and industrial expansion.

In the 6,000 years preceding the machine-age there were many ups and downs in human history. Cultures flowered in Egypt, Sumer, Crete, Greece, Rome, India, China and many other parts of the world. Civilizations rose and decayed. At the height of their advance the lot of the ordinary citizen was no doubt better than in the other centres where civilization was already decaying or was about to begin. But the differences among them could not have been very large. The average man in the advanced centres of human civilization was perhaps one-half or at the most twice as well off as in the less advanced centres.

Nowhere was the progress in the level of living steady and continuous. This is not surprising. It can be illustrated by a simple calculation. Suppose the level of living increased steadily during these millenia at only one-tenth of 1 per cent per year—such an insignificantly low rate as compared with what has happened in the last century. If this modest rate was maintained steadily, the average standard of living would have risen seven times in 2,000 years, 20 times in 3,000 years, 50 times in 4,000 years, 130 times in 5,000 years and 340 times in 6,000 years. If we look backward this would imply that at this steady rate of growth, peoples in Egypt, Sumer or the Indus Valley civilization

at the height of their glory were fifty times poorer than to-day. Surely not only an impossible, but an absurdly impossible proposition !

What does all this add up to ? It simply suggests that until the beginning of the machine-age half-way through the 19th century, the differences in levels of living among countries in the world were rather minor. No country had attained a built-in steadiness in its economic advance. These two elements appeared on the world economic horizon only a century ago.

How did the vast gap in the levels of living evolve ? In terms of economic growth of nations, it was the result of a steady increase of per capita income at two per cent per year, continued for a century, in the industrial countries of the world, at a time when the levels of living in the rest of the world either stagnated or even declined. Economic historians and philosophers have advanced many reasons to explain the differences in the rates of development in these two areas of the world. Some have stressed the Reformation and the rise of Protestant ethics. Others, less scholarly and more prejudiced, have suggested climate, geographical location, inherent laziness of the people as the causes. For the moment, these controversial explanations may be disregarded.

The process in its bare essentials was rather simple. There are many technical landmarks in mankind's development : the early use of the fire and later the taming of it : the domestication of animals ; the invention of the wheel : the introduction of agriculture and irrigation ; the smelting of ores and the use of metals ; the invention of scripts : paper and the art of printing ; ship's stern-post rudder and marine compass, gun-powder ; Indian numerals and the methods of calculation ; and many others originating in various parts of the world at various times can be added to this list. While some of these were available to different peoples at different times, they all found their confluence in north-western Europe by the 18th century. The result was a revolutionary transformation of economic perspectives for mankind.

For the first time mankind attained the possibility of a steady rate of economic growth. An increase in *per capita* output by 2 per cent per year was a powerful engine of massive expansion. In the industrial countries it raised *per capita* output seven times

in one century and nearly 20 times in a century and a half. This, then, was the genesis of the economic distance between the rich and poor countries of the world. This is a rather long introduction to the main theme of this lecture. But let me summarize briefly the main burden of the argument so far. The dimensions of pace and time for the growth of economic inequalities among nations were an annual rate of growth of 2 per cent per capita for a century. Like the humble origins of all great rivers the origin of the most distressing disparity in international levels of living was also equally humble.

2. THE OUTLOOK FOR THE FUTURE

The main questions that I would like to pose for your consideration are: What kind of economic world shall we bequeath to our children? What kind of economic perspective can we reasonably outline for the next generation—by around the end of this century?

During the last few decades, many countries, (the centrally planned economies and Japan and Germany) have attained rates of growth which range from 4 to 6 per cent *per capita* per year—much higher than during the last century. Among the countries where such rates have been maintained, there are vast differences in their natural resources and climate, in the size of the country; in population density and the land-man ratio, in the structure of employment and output and the level of *per capita* output; in the dependence on foreign trade and the extent of foreign aid; in the cultural, educational and technical background of the population; in its outlook on life and its social values and norms; in the calibre, vision, administration, ability and popularity of the political and economic leadership. Despite these, the rates of economic growth in these countries have been uniformly high. It may be suggested therefore that the influence of these factors on the rate of growth of an economy need not be exaggerated, as has been so often done in the recent literature on economic growth.

(a) *Significance of a High Rate of Growth*

Of course you may wonder here why so much fuss is being made about whether the rate of growth is 2 per cent or 6-8 per cent.

Even a school boy would know that 6 per cent is three times higher than 2 per cent. But his innocent arithmetic is inadequate to indicate the dynamics of economic growth. Let me illustrate this. At 2 per cent per year *per capita* output would grow 2.7 times in 50 years and 7.2 times in 100 years, at 6 per cent, however, the expansion would be 18 and 340 times respectively. Thus, although 6 per cent is three times 2 per cent at a point of time, the higher rate would bring about an expansion nearly seven times as high in fifty years and 47 times as high in a century. The small arithmetical difference between the initial rates of growth are magnified manifold in the final output when compounded over a long period.

Let us now return to the vision of the world by the end of this century. In order to view the image of the world at that time, we can make some simple assumptions about rates of growth. I must emphasize that these are merely assumptions made for the specific purpose of illustrating the dynamics of growth. Suppose the historic rate of growth of 2 per cent *per capita* continues in the private enterprise industrial countries and that of 6 to 7 per cent in the centrally planned economies. This would mean that by the end of this century the former would raise their *per capita* output by more than twice, and the latter by 10 to 15 times.

What rates of growth may be attained in the under-developed areas? If the *per capita* rate of economic development in these countries is not higher than 2 per cent it is obvious that the economic distance between them and the rich countries will not be bridged. Should they succeed in accelerating the rate, say from 2 per cent *per capita* to 7 to 8 per cent, there is little doubt that by the time this century is old and over they would raise their level of living to the present level in the most advanced industrial countries. A tantalizing prospect indeed! But the sceptics would rightly ask: can this really be done?

Rate to be Attained?

me far indeed from the main theme of this lecture all the manner in which this can be done. I would that the central task before economists and planners be the ways and means by which such a rapid rate of

growth can be attained and maintained for a few decades. I will only suggest some broad considerations why, purely from a commonsense point of view, it would seem reasonable now to work toward a higher rate of growth.

Firstly, it is a bit odd to suggest that the feasible rate of economic growth (*per capita*) in the less industrialized countries today can hardly be higher than that realized by the industrially advanced countries in the early days of their economic growth—that is a century ago. The industrial countries could not advance faster than technological growth. The situation today is fundamentally different. The treasure house of technical knowledge in industry, agriculture and other fields is vast indeed. Economic growth in the less industrialized countries is now, as it was never before, a function of their ability to draw on this accumulated storehouse of knowledge and assimilate the new techniques. Moreover there are planning organizations in many countries which can be expected to help if there were a wide vision, clarity in outlook, courage in convictions and firmness in action.

Secondly—and this is much more important—to suggest the feasibility of a high rate of growth of *per capita* output (say, over 5 per cent) is not to indulge in science fiction now. In the 19th century such rates were unknown. But in the 20th century they have been attained in many countries for varying periods. They are a common feature in most of the centrally planned economies; Western Germany and Japan provide striking illustrations in the private enterprise economies. In the light of this experience the feasibility of a high rate can no longer be dismissed on the ground that it is just too high.

Thirdly, let us examine the potential for economic growth somewhat more closely in two of the most important economic sectors—agriculture and industry.

(c) *Growth of Agriculture*

The largest economic sector in the pre-industrial economies is agriculture. In most countries its growth has been rather slow. The sheer heavy weight of agriculture in total output and a very modest rate of growth in it holds down the average rate of growth for the economy as a whole. It has been often assumed that the

growth in agriculture could not be very rapid. This attitude has by and large been frozen in peoples' minds almost as a religious belief. But is it justified?

The development of agricultural technique is a much more recent phenomenon than that of industrial technique. The so-called 17th and 18th century revolution in agriculture was in the main a social revolution, and improvements in techniques hardly went beyond the stage of adaptation of crop rotations, introduction of root crops, drainage of heavy soils and some improvements in the practice of hoeing and drilling. These were the centuries of what came to be known as gentlemen farmers and landlords who studied and practised improved agriculture. Tull and Townshend had introduced new thoughts on crop rotation. Arthur Young, the famous author of *A Course of Experimental Agriculture* published in 1770, became the secretary of the Board of Agriculture when it was established in 1793. He tried to popularise the technical literature on improved farming. Bakewell was responsible for bringing about considerable improvements in animal husbandry through improved breeding and feeding. The influence of all these improvements on output however was rather limited.

The real revolution in agricultural technique, yet in an experimental stage, began only in the second half of the 19th century. Its widespread use in north West Europe did not commence much before the end of the last century. Justus von Liebig began his experiments on plant growth in the forties of the last century. In Britain Sir John B. Lawe also demonstrated the possibilities of raising yields through the use of fertilizers. In the last 20 years of the 19th century, however, the amount of super phosphate applied to the soil was very small even on the best managed farms. In the rapidly developing countries, nitrates were a rarity and their use was limited by natural supplies. Synthetic production of nitrogen was introduced on any scale only during the first world war when Germany was cut off from the nitrogen supplies from Chile. Classification and analysis of soil and the science of its enrichment also began mainly in the closing decades of the 19th century. Similarly the experiments towards evolving new varieties of seeds and hybrid plants suited to varying conditions of heat, light, moisture and soil and resistant to frost, pest and disease—

that is the whole science of agrobiolgy—is mainly a twentieth century phenomenon.

The results of the spread of the new technique have been astonishing. If the output of wheat is taken as an indicator, it is found that the average yields per hectare of land in the most developed countries of north western Europe were not more than 10 to 12 quintals during the sixties of the last century. This yield is not significantly different from those prevalent in the areas with assured water supplies in most of the under-developed countries at present. Owing to the rapid assimilation and massive spread of the new techniques the yields of wheat per hectare in the most advanced European countries were raised 3 to 4 fold—that is up to 30 to 40 quintals per hectare in the course of half a century.

Can it be seriously suggested that these improvements have very little applicability to the under-developed areas? In fact, the results in experimental stations in India as well as in other countries show that the potential for raising yields is indeed very high. The problem therefore is not evolving new techniques; it centres around the possibility of introducing these new techniques on a large-scale—that is, it is mostly administrative.

The limitation is not even economic in character. In contrast to industry, where the amount of capital needed to bring about a given expansion of output is about the same in the rich as well as the poor countries of the world, the main problem in agricultural growth is not heavy investment in agriculture. The per hectare productivity of agriculture in poor countries is so low that the potential of growth through the modernization of agriculture is very large. Experience has shown that by merely increasing the input of fertilizers with some adaptation of new seeds and improved techniques of cultivation the yields per hectare can be doubled or even trebled. The problem is to make these fertilizers and seeds available either through imports or by expanding domestic output and to see that they are utilized in the most economical way at the farms—that is instead of spreading them thinly over the whole country they should be concentrated in adequate quantities in areas where the response in terms of increased output is very significant. These areas will obviously be the ones where there is an assured water supply.

Is it necessary that the introduction of these new techniques

should take a very long time, say, half a century? The example of Yugoslavia comes readily to mind. Once it was accepted in that country that the yields could be raised very high and very rapidly, maximum attention was paid not towards heavy investments in irrigation facilities or such other soil conservation measures designed to change nature, but in re-directing the effort towards the concentrated application of a given sample of technique. It was found that the yields could be raised in a matter of two to three years from 10 to 35-40 quintals per hectare. Between 1956-60 new techniques were applied to 40 per cent of the total area under cultivation and led to yields which were as high as those prevalent in Denmark and the Netherlands, the two countries with perhaps the most intensive agriculture in Europe.

What does this mean? It simply shows that if it is accepted in principle that yields can be raised very rapidly then it is possible to direct the entire intellectual and administrative resources of the economy towards devising and carrying out the detailed solutions necessary for attaining expansion. But it is essential that the mental framework at the top-levels of the planning bodies has to be radically altered. Nor does the acceptance of such a possibility involve any serious increases in investments in agriculture. It does, however, necessitate a fundamental redirection of the given investment in agriculture—away from expensive and long-maturing investments to a concentration on the faster maturing and less expensive techniques.

If agricultural output can be raised rapidly its advantages for attaining a fast rate of economic growth are obvious. By augmenting the supplies of essential consumer goods it makes it possible to undertake a very rapid programme of investments in other fields without the danger of serious inflationary pressures. With incomes rising rapidly the whole task, now considered almost impossible, of raising investments from a very low level to a high one becomes a relatively simple proposition.

Industrial Expansion

In many pre-industrial countries the growth of industries has been fairly rapid in the post-war period. But modern industries by and large form such a small proportion of total income in

these countries that their rapid growth—often amounting to 10 per cent per year—has not been able to contribute significantly towards raising the overall rate of growth of the economy as a whole.

It may be helpful to look at the pace of industrial growth in the world. Over the last hundred years industrial output in the world as a whole has grown at about 3.5 per cent per year. It is illuminating, however, to note that the rate of growth has been strikingly lower in the countries which started industrialization earlier. For the period of 33 years (1880-1913) the rate of growth of industrial output rises from about 2 per cent per year in the United Kingdom to 3 per cent for France, 5 per cent for Germany, the United States of America and Italy, and about 6 per cent for Sweden and Russia. For the 45-year period from 1913-1958 the rates rise from about 2 per cent for the United Kingdom and France to 2.4 per cent for Germany, over 3 per cent for the United States of America, Italy and Sweden, 5.4 per cent for Japan and over 8 per cent for the USSR—and in this crowded 45 years there were two World Wars and the big Depression !

The rate of industrial growth for each new entrant to the process of industrialization has been usually higher. This results from the opportunity of benefiting from accumulated technological advance—a factor which was so emphatically and persistently stressed by Veblen. It is reasonable to suppose that the rate of industrial growth in countries such as the United Kingdom and France was determined in the main by the pace of technological advance. These countries could only apply new techniques as they evolved ; whereas for each new entrant there was already an accumulated body of technological progress to assimilate. The newly industrializing countries did not have to follow religiously the slow and necessarily step-by-step developments in techniques common to the countries which set out early on the road to industrialization. Nor did they have to bear the costs and delays of evolving and industrially trying out the new techniques, the countries which were ahead continued doing most of this. The later a country entered the field of industrialization the larger was the fund of technological advance upon which it could draw and hence the faster its possible rate of growth. So long as the technological gap between the pioneering countries and the newcomers was

not bridged the high rates of growth in the latter could be maintained.

It would follow that in technological terms the rates of industrial growth could not have been much higher in the pioneering countries for the same reasons. Technologically speaking, the rates of growth in the countries just starting industrialization now can be higher than those attained by the countries industrializing in the first half of the 20th century and substantially higher than the rate of growth attained by the countries which began industrializing earlier.

Let me illustrate this by an example from Indian data. Industrial output in India now amounts to about 15 dollars *per capita* as against 350 dollars in the United Kingdom and about 600 dollars in the United States. The gap would obviously be smaller if Indian output is converted for the purpose of comparison in United States relative prices. If industrial output continues to grow at a *per capita* rate of about 10 per cent per year for the next four decades, it would increase 45-fold, or above the present level in the United States. If United States relative prices are used in the calculation, the absolute level would be still higher, or the time required may be shorter. Thus attainment and maintenance of a 10 per cent rate of growth in industrial output is sufficient to bridge the gap in 40 years in industrial output even at its widest—that is between India and the United States.

3. SUMMARY

How shall we summarize all these scattered observations? The *per capita* income in India is about 75 dollars; in the United States it is over 2,000 dollars or nearly 30 times as high. This need not imply that the level of living in the United States is also 30 times as high. In a country like India an individual may subsist on a *per capita* income of 75 dollars but it is simply inconceivable that in a country like the United States anybody can subsist on 75 dollars per year unless, as Professor Kuznets once suggested, he were fortunate enough to have rich relatives to support him or he was clever enough to keep on robbing others without being caught by the law.

In India many natural facilities are free goods. Owing to the

warm climate, requirements of food, clothing and shelter needed for survival are much lower than in the United States. There is also the problem of evaluating the output of the service sector. For example, a barber in the United States would give you a hair cut at a price which is about 10 to 15 times higher than that charged by an Indian barber. Of course, the chair on which you sit is better, the equipment is more modern and the place is cleaner. Even when allowance is made for the capital costs of these facilities, no one would surely want to suggest that the barber in the United States is 10 to 15 times more productive—in the economic sense of the term—than his Indian counterpart. The same is true of the service of teachers, government employees and most other salaried people. For these reasons the actual difference in the *per capita* national incomes of these two countries has to be adjusted to allow for differences in relative prices. As a very crude calculation it may be suggested that if Indian output were valued at United States prices, the comparable *per capita* income in India would be not 75 dollars but perhaps in the neighbourhood of 175 to 180 dollars. The economic gap between the two countries would then be not as high as 30 times but about 10 to 12 times.

It is well-known that India is a country where food supplies are relatively scarce. In the United States, on the other hand, agricultural output poses serious problems of surplus disposal. One might imagine that the agricultural output in the United States must, therefore, be considerably higher than in India. But in fact only 5 to 6 per cent of the national output in the United States originates in agriculture, so that the *per capita* agricultural output is roughly 120 dollars. The comparable figure for India (at 50 per cent of total output) is a little over 35 dollars. If allowances are made for lower relative prices in India, this would be in the neighbourhood of 50 to 55 dollars. Surprisingly, therefore, the difference between agricultural scarcity (India) and surplus (United States) ranges in the ratio of only 1·22. If the *per capita* agricultural output in India were to be brought to the level in the United States it does not require much more than a doubling—surely not a fantastic proposition. This level can be reached in 25 years if Indian agriculture expands annually at 3 per cent *per capita*, and in 40 years, if the growth rate is 2 per cent.

It was already suggested above that the United States level of *per capita* industrial output can be attained in 40 years at a growth of 10 per cent per year. If the two sectors—agriculture and industry—are added together, the economic distance that separates India from the United States can be covered in four decades at a *per capita* rate of growth of 5 per cent for the combined output.

I should like to leave it to you to consider whether this is really an impossible task. If you accept it as possible, it will then be our task over the years to come to suggest and work out in concrete detail the necessary steps for completing the journey from absolute squalor to relative affluence.

FROM POVERTY TO AFFLUENCE*

SOME of the essays in the preceding pages provide us with a useful frame of reference with which to assess the economic growth during the last hundred years and to explore the economic outline of the century to come. A word of warning is, however, necessary before being carried too far into the future. The remarks that follow are more or less in the nature of concluding reflections, useful for speculative purposes but not for precise projections.

1. ECONOMIC GROWTH SINCE 1850

Economic transformation of the industrial countries over the last century suggests three features which are important for assessing the prospects for the decades to come.

(1) Total income in the industrial countries increased nearly 21 times between 1850 and 1960. Since population expanded a little under three-fold, *per capita* income rose over seven-fold, or by much more in about a century than in the entire preceding history. The growth rates in this period were modest by modern standards—2.8 per cent per year for total and 1.8 per cent for *per capita* output. But when growth continued steadily for a century even at this low rate, the relentless power of compound rates raised the average level significantly—seven-fold.

(2) As industrialization spread from its original centre to other countries, there was a steady rise in the growth rate of overall and *per capita* output. The long-term annual *per capita* growth rate was 1.2 to 1.4 per cent in England and France; 1.6 to 1.8 per cent for Germany, Denmark, Switzerland, the United States and Canada; 2.1 to 2.8 per cent for Norway, Sweden and Japan; 4 per cent or higher, depending upon the estimator, for the Soviet Union; and 5 to as high as 7 per cent during the last dozen years for a number of countries both in the West and the East. The

* A slightly revised version of the study "On Our Economic Future" published in the *Economic Weekly* (Bombay), Special Number, July 1964.

late-comers to industrialization appear to have been clearly benefited from the accumulated treasure-house of world technology.

(3) All sectors of the economy did not of course develop at an equal pace. Agricultural output rose about 5 times, industrial output over 40 times, and services over 20 times. As a result the share of agriculture in the total fell from 40-50 per cent to only about 10 per cent, and that of industries rose from around 10 per cent to about 40 to 50 per cent. The complete reversal of the relative shares of agriculture and industry is the most distinctive feature of the process.

2. PERSPECTIVES FOR THE NEXT CENTURY

What would the world economy look like 100 years later? The answer depends on a number of variables, which can hardly be ascertained with certainty for as long a period as a century. Our estimates are therefore not to be treated as projections. Their main purpose is to illustrate by quantitative extrapolation certain trends which on the basis of our present knowledge may or may not be reasonably expected. For the purpose of outlining the prospects, countries are classified into two groups: the industrial and the developing countries.

Industrial Countries

The average income in the industrial countries expanded seven-fold over the last 110 years—from about \$150 (in 1960 prices) in 1850 to \$1,100 in 1960. The *per capita* growth rate for the group as a whole was under 2 per cent per year. During the fifties, it was much higher—varying between 2 to 6 per cent.

Some indications are available concerning long-term plans or policy statements on long-term outlook for these countries. The OECD group of countries expect for the next 20 years an annual growth rate of 4.2 per cent in overall, and over 3 per cent in *per capita* output. If these growth rates were maintained for a century, real *per capita* output for the group would increase 19 times—from \$1,200 in 1960 to some \$23,000 in present prices by A.D. 2060.

The socialist countries in Europe have prepared perspective plans for the next 20 years. The annual growth rates usually are over 6

per cent. The average may be taken to be over 7 per cent for total and about 6 per cent for *per capita* output. At these growth rates, average *per capita* income would increase some 3.2 times in 20 years. If their *per capita* income increased for the 80 years between 1980 to 2060 at only 2.6 per cent per year, the average level for these countries would also be approximately \$23,000 in present prices.

The main aim of the exercise is neither to predict nor to project the growth rates, but merely to suggest that if an annual *per capita* growth rate of about 3 per cent were to be maintained for a century by the industrial countries, their real *per capita* income (in 1960 prices) would be as high as \$23,000 by A.D. 2060.

Developing Countries

During the fifties, the annual growth rate for the group as a whole was 4.4 per cent,¹ and higher if data for China are included. The aspirations of the developing countries have found a powerful expression in the United Nations General Assembly resolution on the Development Decade, which aims at raising the low growth rate in many developing countries to at least 5 per cent per year by the end of the sixties. But a number of countries, particularly the developing socialist countries (in all accounting for one-third the population of the group), have already planned for even higher growth rates. It is therefore reasonable to assume that if the objective of the Development Decade is attained, the growth rate for the group as a whole may approximate 7 per cent per year.

The persistent demand for accelerated development is leading to a number of very important changes in the established pattern of economic thinking and behaviour. New ideas are taking shape in the field of international trade. The industrial countries, mainly under pressure of competitive co-existence, are becoming more receptive to the idea of enlarged and adequately regulated system of international aid. A system of international

¹ That is higher than in the developed countries. Countries accounting for nearly one-third (and over one-half if China is included) of the output of the developing countries raised it annually by over 6 and close to 7 per cent. See United Nations, *World Economic Survey*, Part I, (New York, 1964) p. 21.

taxation aimed at bringing about a redistribution of world income and wealth may sound too incredible to be acceptable at present, but may in reality not be far off. After all, the use of national taxation as an established system of redistribution of income and wealth is hardly half a century old. Moreover, any progress towards disarmament may be expected to increase sizeably the resources that may be transferred as aid.

During this period, population growth may rise initially to 2.5 to 3 per cent per year, but would then begin to decline as the average income level rises, and simpler methods of birth-control are widely adopted. The demographic transition to low birth-rates is likely to be accomplished more swiftly in the developing countries than in the industrial ones, where it took nearly a century. As a result the average population growth rate for the century may well be 1.5 to 2.0 per cent per year, or perhaps even lower. Since economic development may proceed at about 7 per cent per year, this should give a growth rate of over 5 per cent in *per capita* output. The professional pessimist may dismiss these perspectives, but in a rapidly changing world we live in, these are the acceptable minimum targets which human ingenuity has to strive to attain.

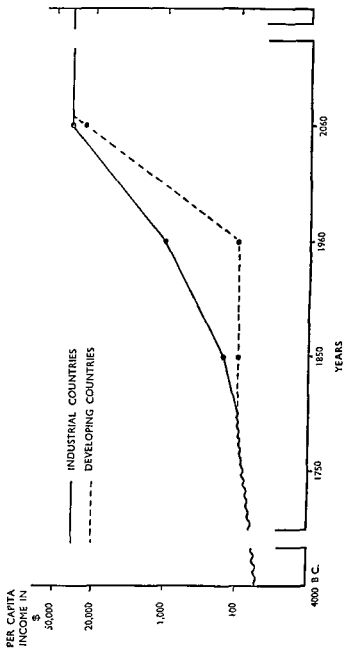
At these growth rates, the developing countries could increase their *per capita* income over 11 times by the end of the first decade of the next century and over 130 times by A.D. 2060. In comparable present prices, it could rise from about \$120 a year now to some \$1,300 (or higher than the present average in the industrial countries) by 2010, and to about \$16,000 by A. D. 2060. Less than a decade would then be needed to bring it to the level of \$23,000, assumed for the industrial countries for 2060 (see Chart).

3. WORLD ECONOMY AT MID TWENTY-FIRST CENTURY

If the annual rates of growth assumed in the preceding section are realized, the world economic landscape would undergo a profound transformation by about mid-way in the twenty-first century (see Chart). The growth rates, the periods and eventual income level mentioned here are not to be taken as definite. They are interdependent and therefore any variation in one of them would change the other.

The relentless power of growth at compound rates is strikingly

ILLUSTRATIVE DYNAMICS OF THE GROWTH OF WORLD PER CAPITA INCOME, 4000 B. C. TO A. D. 2060
in United States Dollar in 1960 Prices
 (Semi-logarithmic Scale)



SOURCE : See text.

NOTE : The chart indicates merely the broad sweep of movements at selected points.

brought out by the exercise. Cumulation for a century of growth of *per capita* income by 3 per cent for the industrial countries and by 5 per cent for the developing countries could raise it in real terms to \$23,000 and \$16,000 respectively. This modest disparity in the rates of growth for the two areas would go a long way in overcoming the vast economic inequality among nations, which has developed mainly in the last century. This would of course not happen automatically. The inescapable task therefore is to devise appropriate means to attain what need no longer be considered a hopeless undertaking. At this stage question may well be asked whether these growth rates and the expansion of output they could bring are in fact necessary. The answer may be sought through an analysis of the transformation of the patterns of output and expenditure.

Pattern of Expenditure

Top 1 per cent of all the spending units in the United States received 9.5 per cent of total income in 1946; the average for the group was \$16,800 and their savings-income rate was 38.4 per cent which varied within narrow limits (37 to 43 per cent) between 1919 to 1945.² Coming to more recent period, 125,440 units out of a total of 48 million received in 1960 taxable individual income in excess of \$50,000 per year; their total gross income was \$11.5 billion and they paid \$4.3 billion as federal taxes, or 38 per cent of their income.³ Average annual income per unit was about \$90,000. Of this, over one-third was paid as taxes and a further one-third was perhaps saved, leaving only about one third (or \$30,000) for consumption expenditure. This comes to about \$7,000 per person, assuming a family of four.

It can hardly be presumed that these families are faced with the problems of penny-pinching to satisfy all their requirements of goods and services which modern technology offers. Our projections of the world economy, given the assumed growth rates, provides for an

² Kuznets, S. S., *Shares of Upper Income Groups in Income and Savings*, (National Bureau of Economic Research, 1953), pp. 176-77. During 1919-38 the top 1 per cent received as much as two-thirds of all dividends paid to individuals (p. 130).

³ *Statistical Abstract of the United States* (1963), p. 400.

average annual family income of \$90,000 by A. D. 2060 for all the world's families— or about the same as that of only 125,000 families in the richest country today. Affluence, the privilege of a handful so far, could then spread to all.

Applying the present expenditure pattern of the top income groups to the future, it would seem that no more than one-third of this high income would be needed to assure normal consumption expenditure at the highest level of want satisfaction. The rest would be available for savings (investment) and public expenditure. With *per capita* income as high as \$23,000 by A. D. 2060, it should be possible, given the present tax and savings ratios, to have for these two purposes sums which are over 20 times higher for every single citizen of the world than now in the United States.

These illustrative estimates indicate that the economic problem as we have understood it over the ages is likely to be solved long before these levels are reached. In other words, the growth rates we have assumed need not be maintained for a century ; or somewhat lower growth rates would suffice to attain the economic transition.

Pattern of Output by Industrial Origin

The above conclusion is also reinforced if the probable changes in the pattern of output by industrial origin are examined. Since 1850, the share of agriculture in total output in the industrial countries has fallen from about 40 per cent to only 10 per cent in 1960. With a present *per capita* agricultural output of \$120, these countries are faced with agricultural surpluses. Whatever the future level of overall income, it is unlikely that the absolute quantum of *per capita* agricultural output would rise significantly. Its share may well fall to 1 per cent, or even lower, by A. D. 2060.

The share of industry, on the other hand, has risen from less than 20 per cent in 1850 to 40 per cent in 1960. In recent years, it has stabilized, implying that it is no longer growing faster than overall output. The potential for industrial expansion is indeed great for, needs of a large part of the world's population still remain too inadequately fulfilled. Even then there is a certain limit to the consumption of industrial goods ; one car per every adult and perhaps one as spare for the family ; one television set in

each room ; more of the still to be invented goods ; and so on. A detailed analysis of the pattern of consumption suggests that ceilings may soon be reached for many items. As a result, it is more than likely that, like agriculture in the last century, industry would loose in relative importance over the next century, falling to about one-fifth of total output.

If the assumed rates of growth and the level of income for A.D. 2060 are to be realized an overwhelmingly important share of the expansion (over 80 per cent) would have to be accounted for by the service sector. But in a world as rich as postulated here, it would not be easy to find people who would be simply offering services to others by holding their hands. In that case, the growth rates we have assumed would prove to be either too high or the period too long.

4. CONCLUDING OBSERVATIONS

The economic dynamics for the next century is sketched in the preceding pages. The dimensions of time and pace, to rephrase slightly the expression "time and space" in modern physics, suggested therein are based on heroic assumptions. They are used merely to illustrate, and not to predict, the quantitative implications of development. A different set of figures can easily be derived by varying the assumptions. With all the qualifications that may be added, the exercise seems to provide a useful basis for some observations.

(1) Our analysis has indicated that even the modest dimension of time we have assumed may prove too long or of pace too swift for the final abolition of the economic problem. The economic transition from age-old poverty to abundance would in fact require lower dimensions than these. The age of realization of mankind's dreams, following the ages of expectation and effort, thus need not be more than a century away. Those who are in their twenties now could be alive to see its emerging outline, and their children could live through it.

Tawney's acquisitive society and Galbraith's affluent society essentially reflected the urges and the conditions of a small minority of mankind, most of which has lived throughout its history under excruciating poverty, squalor and misery. It has so

far remained a highly unequal society in which only a handful enjoyed relative affluence. A century of economic growth outlined here could see the virtual conquest of scarcity, the end of the age-old unequal world and the emergence of universal affluence.

When an economic historian will sit down around the end of the next century to chronicle and assess the preceding two centuries, he would feel what a great watershed that period was in world's history. During it, average real *per capita* had risen over at least 100 times. If he had some statistical background, he may attempt to estimate its economic attainments. If 6000 years of past history were taken as one day, these 2 centuries would represent less than an hour. But he would find that the real output of goods and services produced in that hour of intense outburst of activity was at least 50 times higher than in the entire preceding period. In characterizing the early nineteenth-century world, he would be irresistibly drawn to recall Milton's memorable words :

Me thinks I see in my mind a noble and puissant nation
rousing herself like a strong man after sleep
and shaking his invincible looks ;

Me thinks I see her as an eagle mewing her mighty youth
and kindling her undazzled eyes
at the full midday beam.

These two centuries would be regarded as the age of the economist who as a friend, philosopher and guide led the world towards the full realization of its age-old aspirations. His main task thereafter would be modest—to serve as a technician, or a glorified accountant.

(2) Long arduous hours of work to make a bare living would be then a mere historical curiosity. The work-week could have fallen to merely one eight-hour day, or four two-hour working days owing to a continuous rise in productivity.

Such a fall in working hours may sound too incredible to some, but need not be dismissed as unrealizable. After all, since the first May Day demonstration in the United States, the work-week has fallen from some 70 hours to about 35, most of the fall having taken place only during the last 40 years. Moreover, during these

years, the scarcity of goods and services was still serious. The demand for leisure had to be weighed against a denial of some of the essentials. But with the marginal utility of many goods and services becoming a century later either negligible or near zero, the demand for leisure would assume an altogether different dimension.

With so much of leisure, the major social, philosophical and technical concern of mankind would be not the conquest of scarcity, but the orderly provision of "happiness" to what sociologists have called the "lonely crowd".

(3) At the assumed level of income the economic problem as we have so far understood it would cease to exist. Economic development in absolute terms would therefore not be necessary. This outlook is, however, significantly different from previous suggestions of a stationary state, or stagnation of mature economies. In these cases, there was an imperative need for growth, but it was interrupted or terminated owing to a fall in the rate of profits, or disappearance of effective demand. The abolition of the economic problem presupposes that economic growth itself would no longer be needed.

(4) A large part of the intricate framework of world's religions, philosophy, social and political thought, and institutions was built up when the economic problem occupied the centre of the stage in mankind's speculations and struggles. It can hardly be doubted that once it is abolished or finally overcome, this whole edifice would require a fundamental reconstruction. Even when its precise directions may not be indicated at this stage, the need for it is obvious. There has usually been a pronounced time-lag for human thought and behaviour to adjust to changes in environment. The lag could be extremely serious, however, when what would be involved is a fundamental adjustment of most of our values and institutions.

An analysis of the outlook for the next century focusses attention to this major need. It is perhaps time now to undertake the widest speculation aimed at a profound rethinking and refashioning of the present values and institutions to meet the requirements of the decades to come.

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